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LAMPIRAN



YAYASAN PANTI RAPIH
RUMAH SAKIT PANTI RAPIH

Jalan Cik Ditiro 30 Yogyakarta 55223

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Informasi / Pendaftaran

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Nomor : L 436 /RSPR/E/II / 2017
Hal : Izin Penelitian

24 Februari 2017

Kepada Yth. :
Wakil Dekan I
Fakultas Matematika Dan Ilmu Pengetahuan Alam
Universitas Negeri Yogyakarta
Yogyakarta

Dengan hormat,

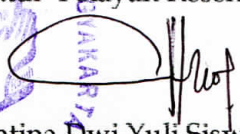
Menanggapi surat Saudara No. : 494/UN.34.13/PG/2017, tertanggal 8 Februari 2017 tentang permohonan izin Penelitian di RS Panti Rapih Yogyakarta, atas nama:

Nama : Dewi Imawati
NIM : 13305141026
Fakultas / Prodi : Matematika Dan Ilmu Pengetahuan Alam / Matematika
Lembaga : Universitas Negeri Yogyakarta -
Judul Penelitian : Klasifikasi Kanker Otak Menggunakan Radial Basis Function Neural Network (RBFNN)

dapatlah kami sampaikan bahwa, pada dasarnya kami dapat mengizinkan permohonan tersebut di atas untuk melakukan Penelitian di RS Panti Rapih, dengan ketentuan sbb.:

1. Data semata-mata hanya untuk kepentingan karya ilmiah.
2. Pengambilan data Penelitian dilakukan dengan pendampingan penyedia data.
3. Penelitian dilakukan diluar ruang lingkup data keuangan RS Panti Rapih.
4. Membayar biaya Penelitian sebesar Rp 200.000 ,-
5. Menyerahkan pas foto ukuran 3 x 4 = 2 lembar
6. Wajib menyerahkan "naskah publikasi" dari hasil penelitian kepada RS. Panti Rapih.
7. Izin Penelitian dapat dibatalkan sewaktu-waktu apabila pemegang izin Penelitian ini tidak memenuhi ketentuan yang berlaku.
8. Rumah Sakit Panti Rapih tidak bertanggung jawab atas penyimpangan dalam penulisan karya tulis ini, yang dilakukan oleh yang bersangkutan.
9. Penelitian dapat dilaksanakan setelah yang bersangkutan melakukan koordinasi dengan Bidang Pengelola Pelayan Kesehatan RS Panti Rapih.

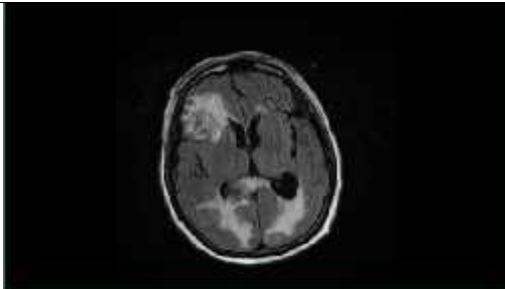
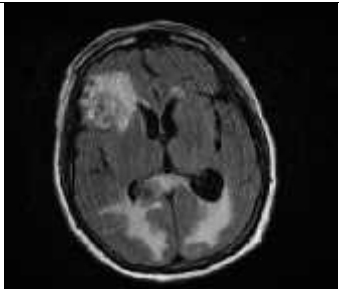
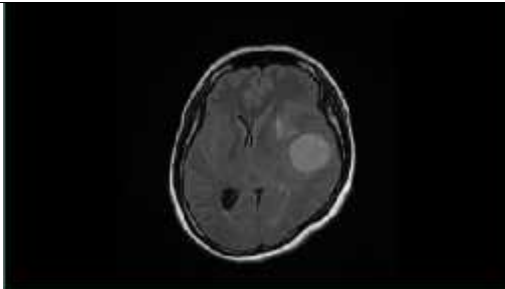
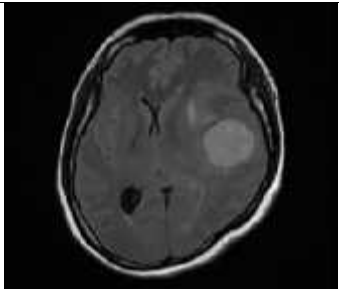
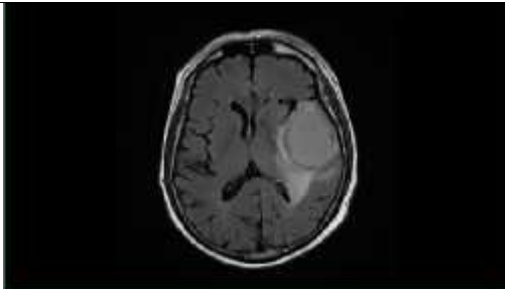
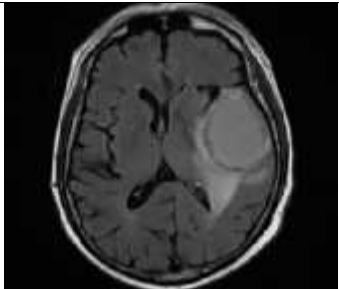
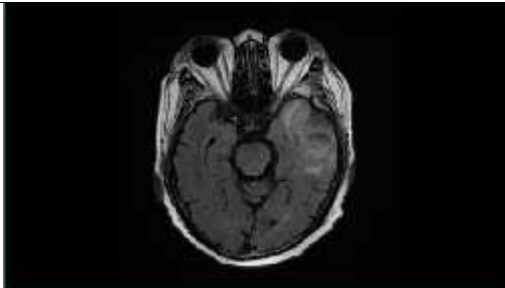
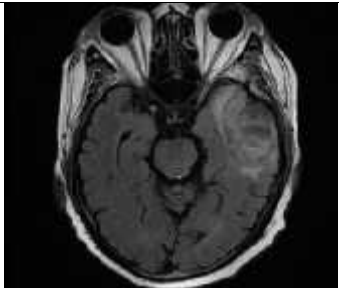
Demikian surat izin Penelitian ini kami diberikan, atas perhatian Saudara berikan, diucapkan terima kasih.

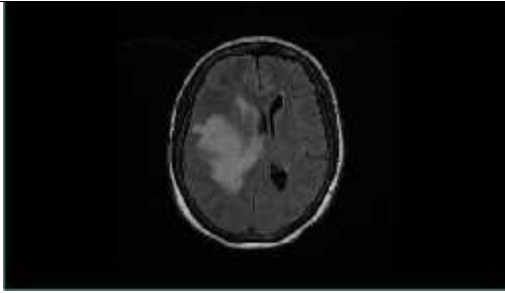
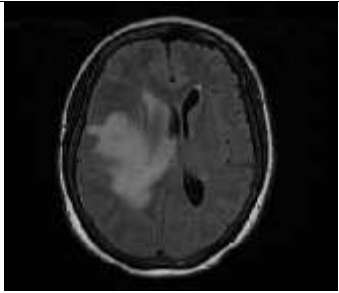
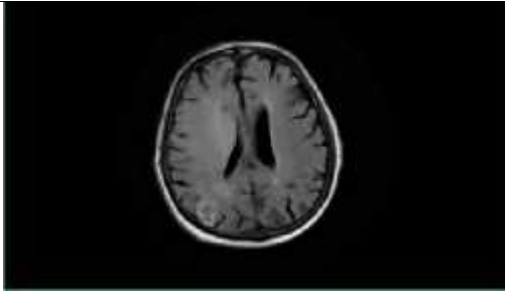
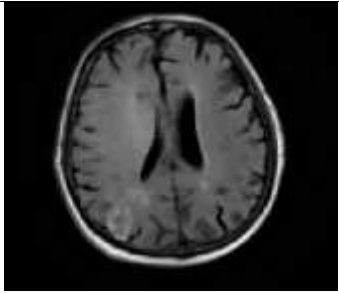
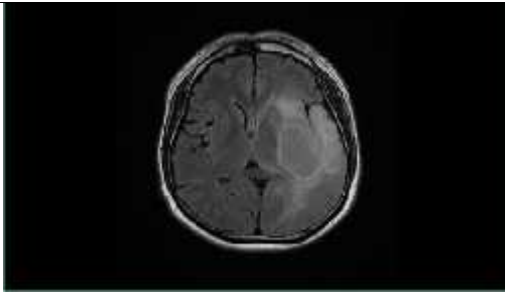
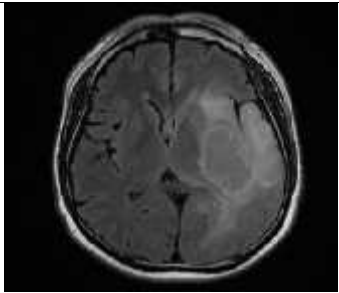
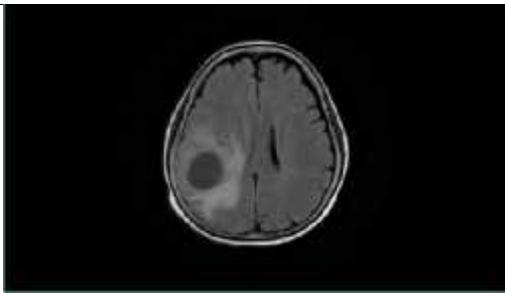
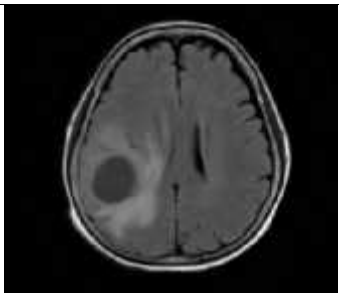
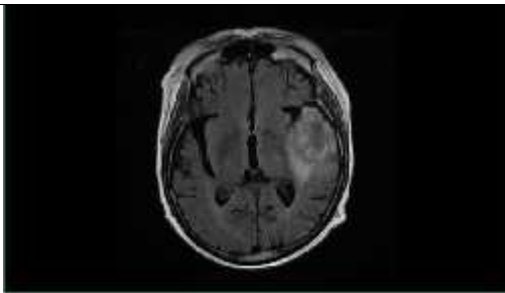
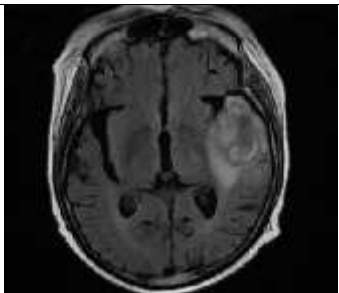
Direktur Pelayan Kesehatan & Infrastruktur,

Valentina Dwi Yuli Siswianti, M.Kes,

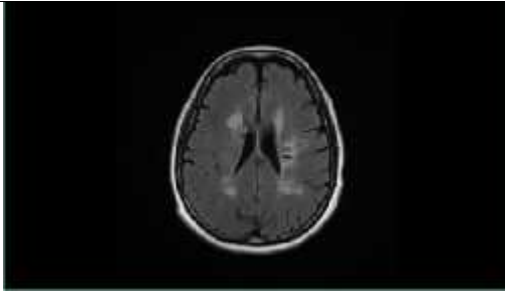
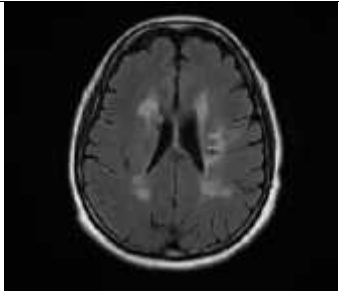
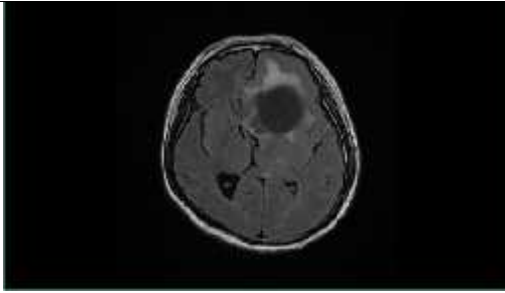
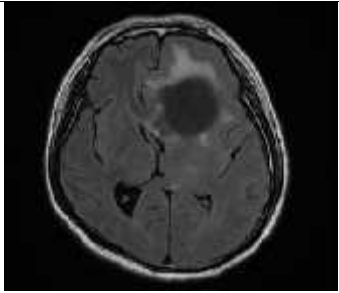
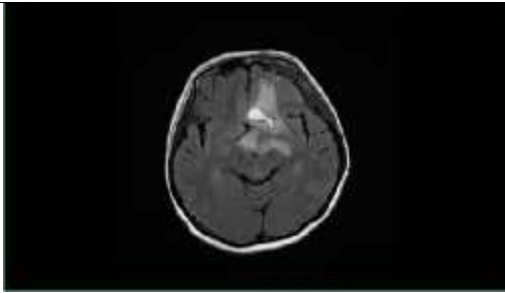
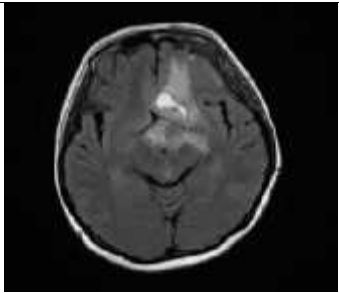
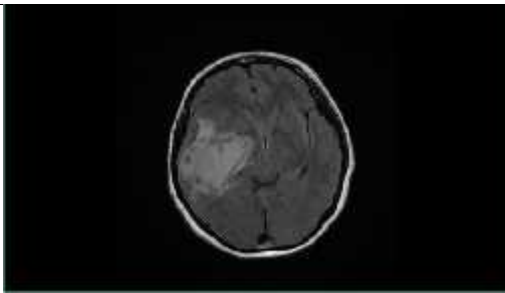
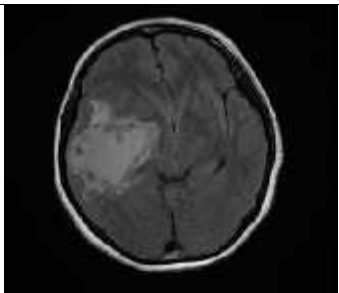
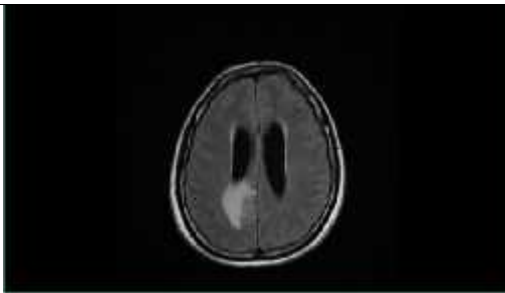
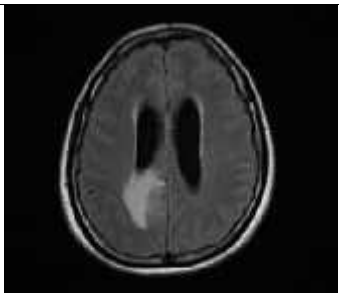
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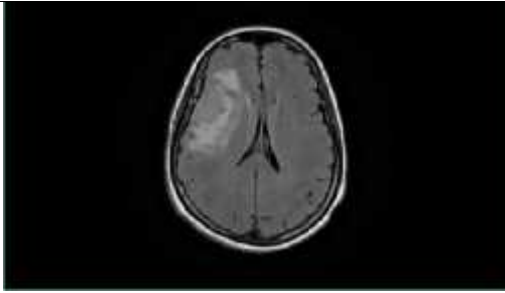
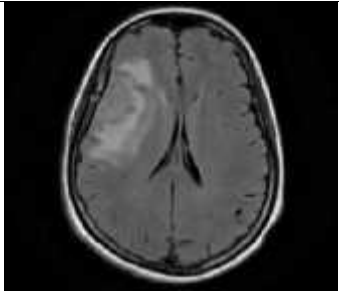
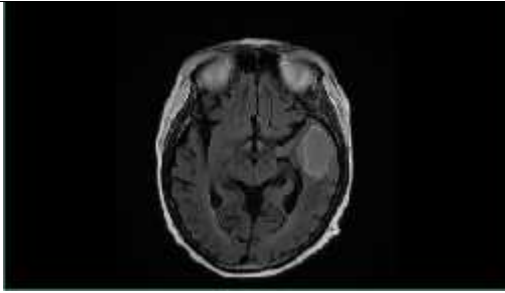
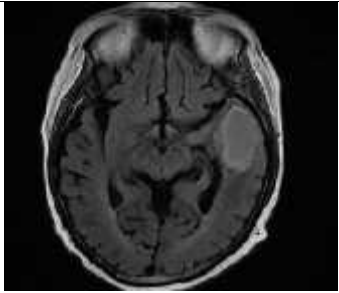
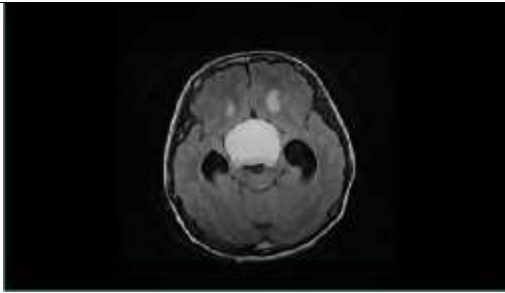
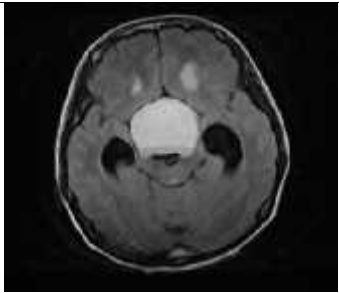
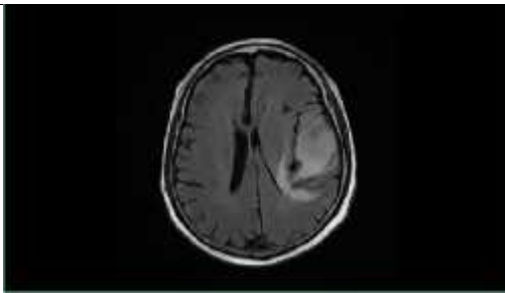
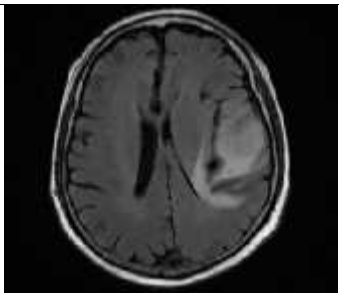
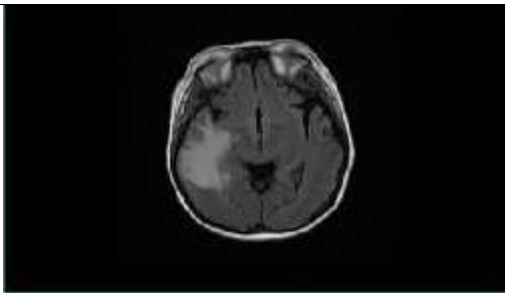
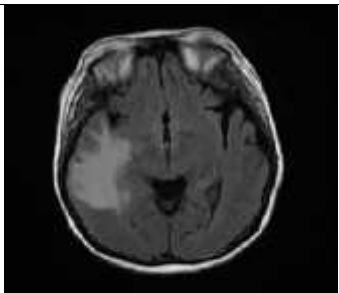
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- ☐ Kepala Instalasi Radiologi

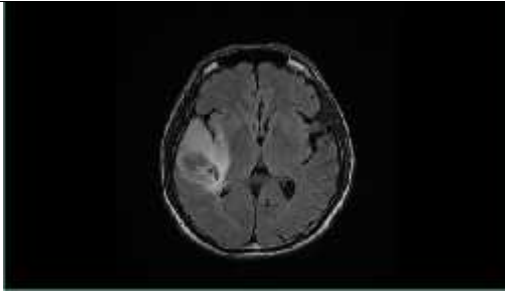
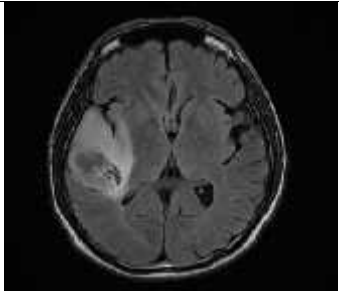
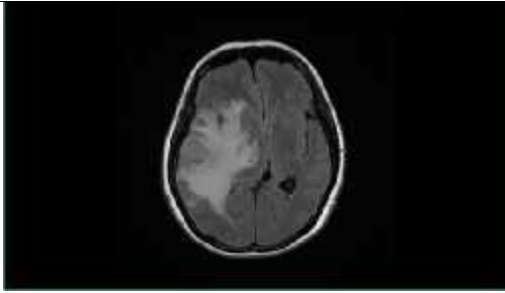
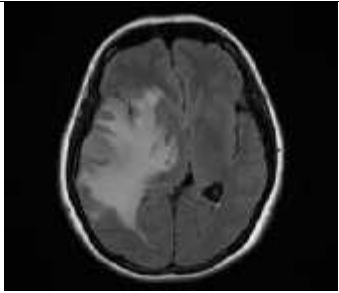
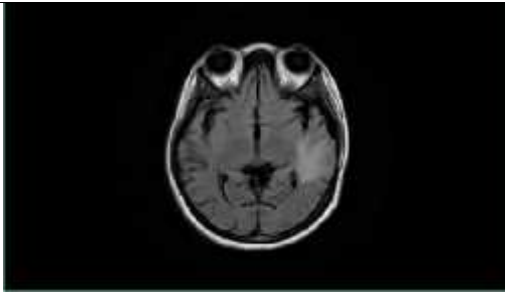
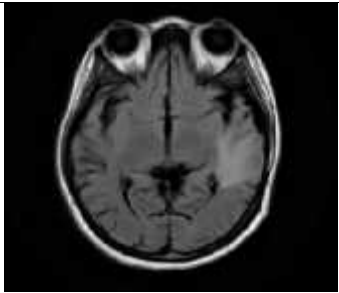
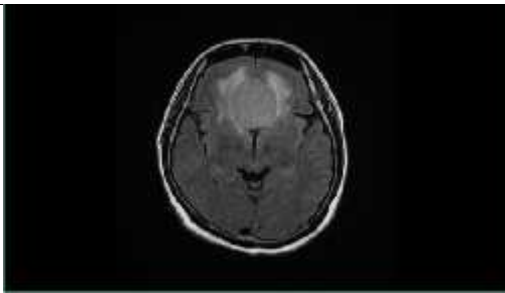
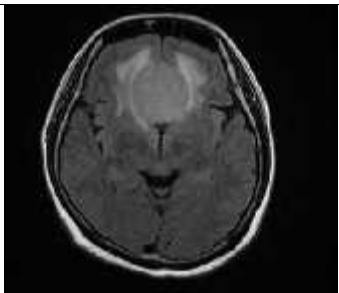
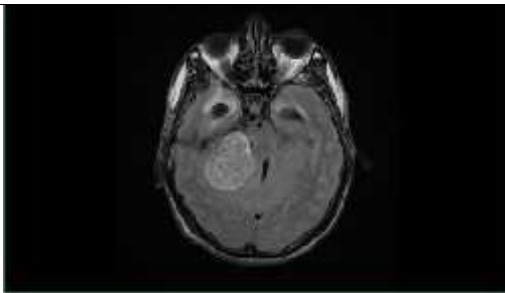
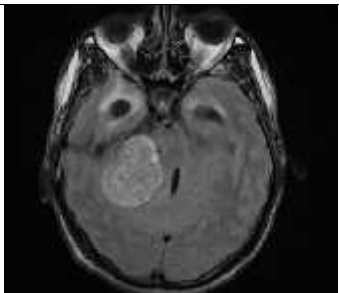
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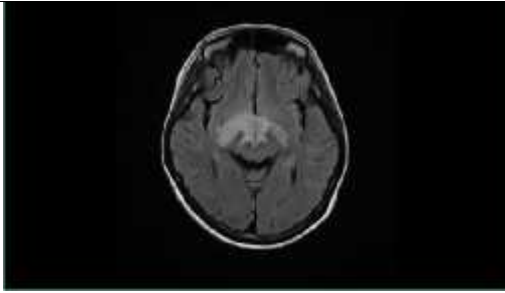
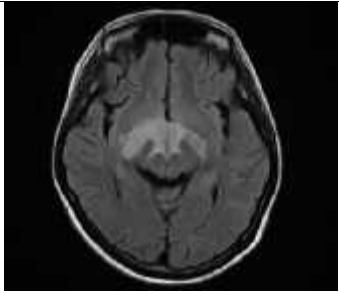

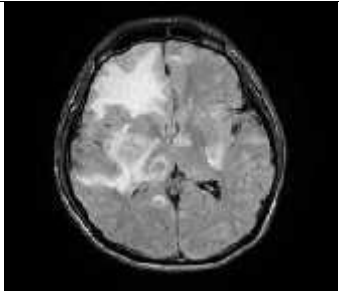
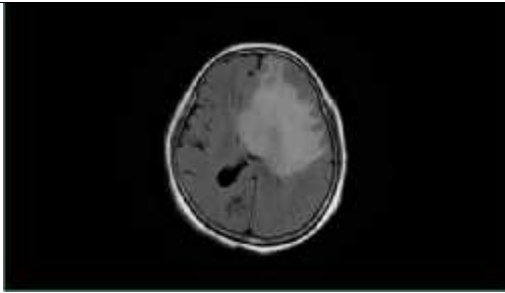
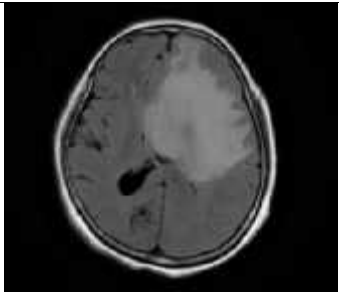

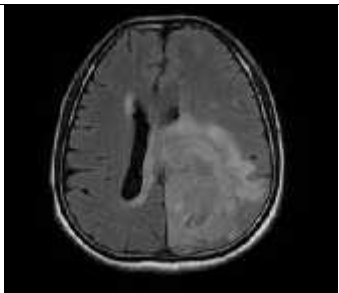

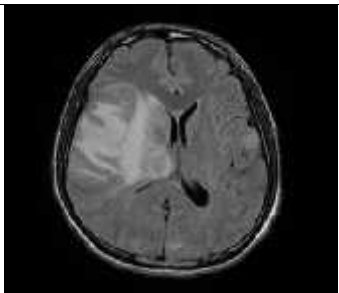
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| 2 | 2765.jpg |  |  |
| 3 | 2801.jpg |  |  |
| 4 | 2810.jpg |  |  |


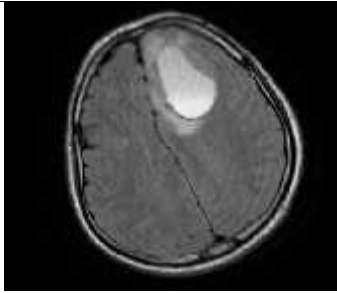

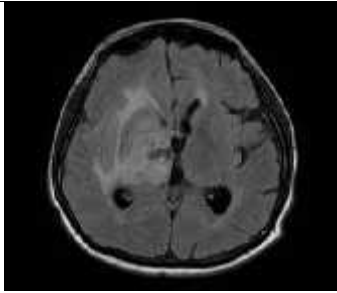
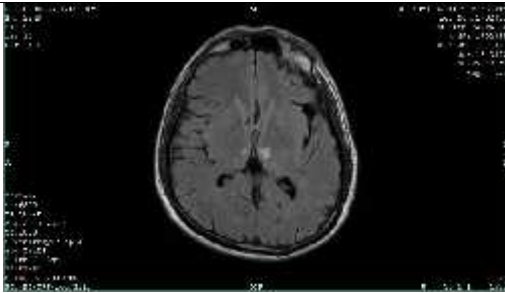
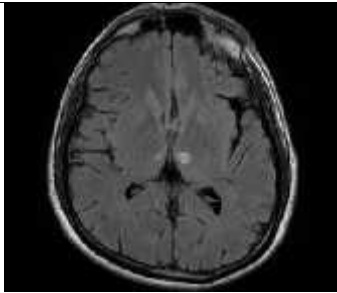
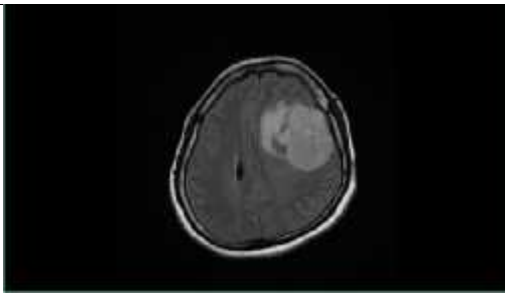
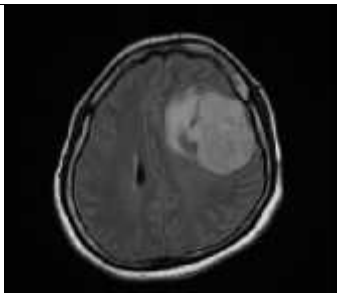

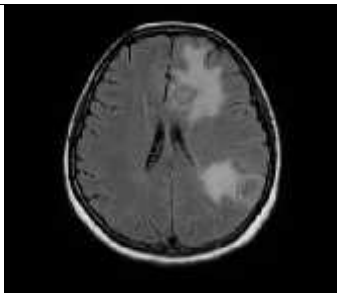
| | | | |
|---|----------|--|---|
| 5 | 2811.jpg |  |  |
| 6 | 2815.jpg |  |  |
| 7 | 2820.jpg |  |  |
| 8 | 2823.jpg |  |  |
| 9 | 2827.jpg |  |  |

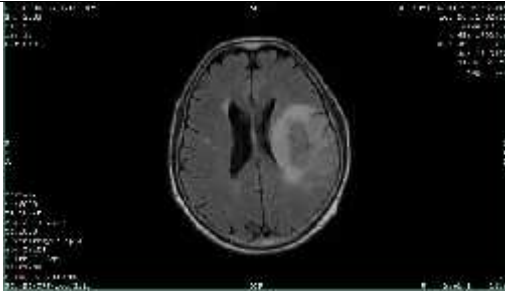
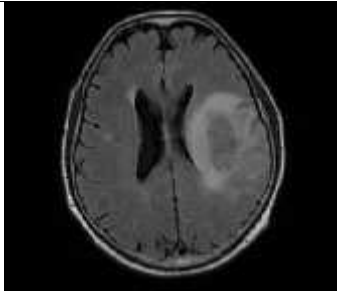
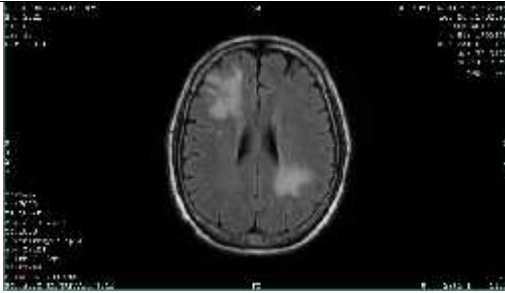
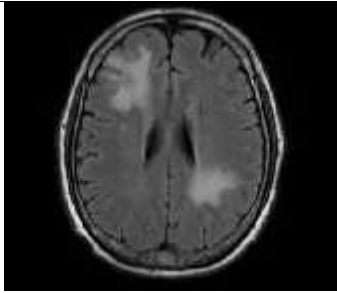
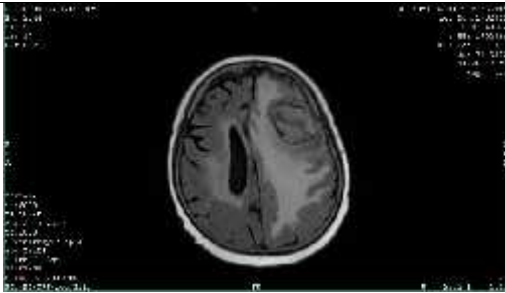
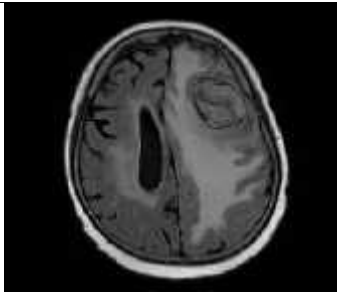

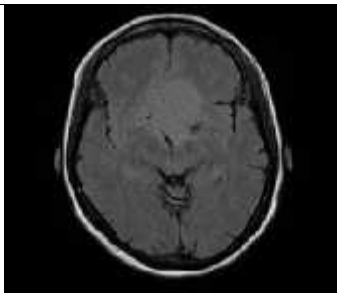
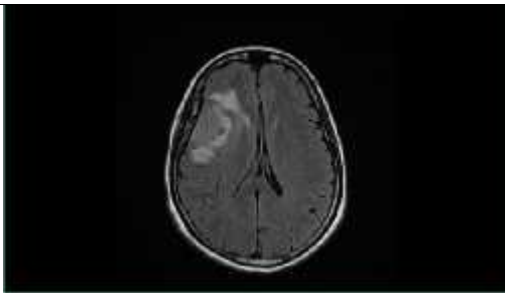
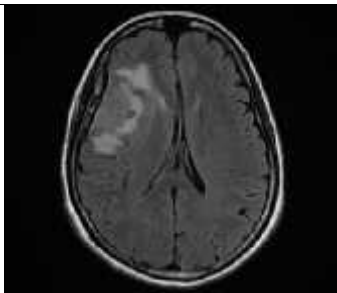
| | | | |
|----|----------|--|---|
| 10 | 2819.jpg |  |  |
| 11 | 2834.jpg |  |  |
| 12 | 2835.jpg |  |  |
| 13 | 2839.jpg |  |  |
| 14 | 2841.jpg |  |  |

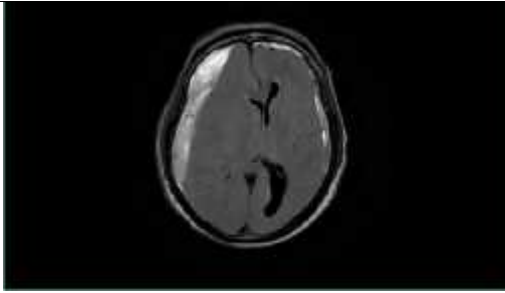
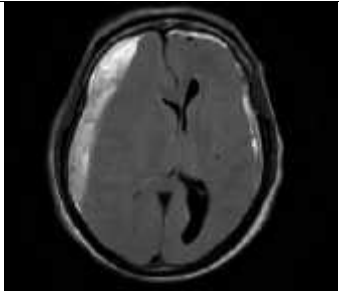

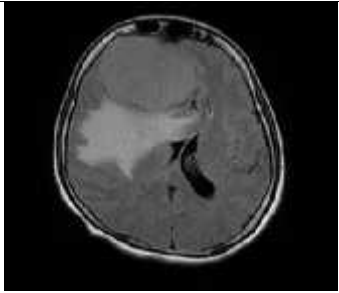
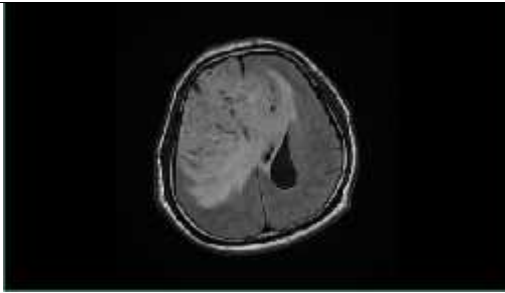
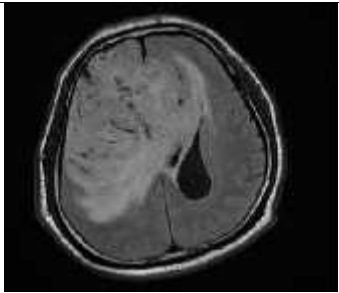
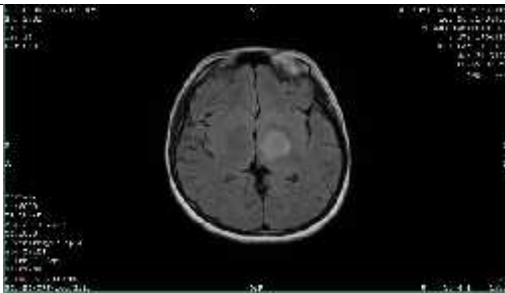
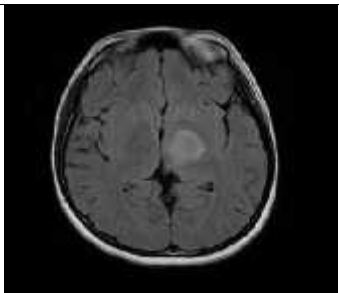
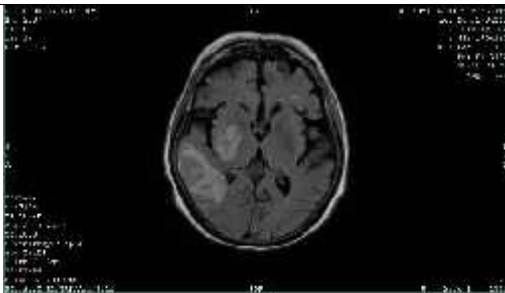
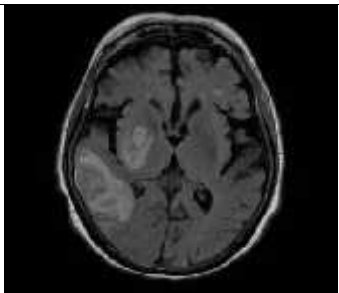
| | | | |
|----|----------|--|---|
| 15 | 2842.jpg |  |  |
| 16 | 2844.jpg |  |  |
| 17 | 2845.jpg |  |  |
| 18 | 2847.jpg |  |  |
| 19 | 2852.jpg |  |  |

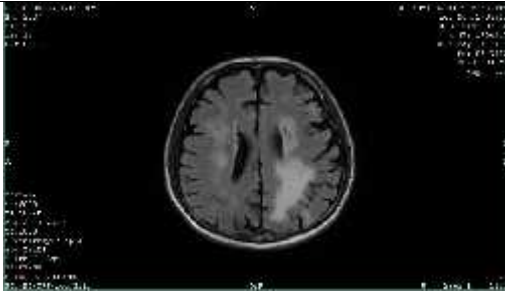
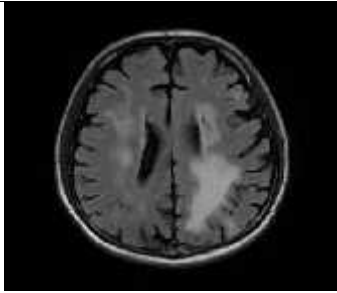
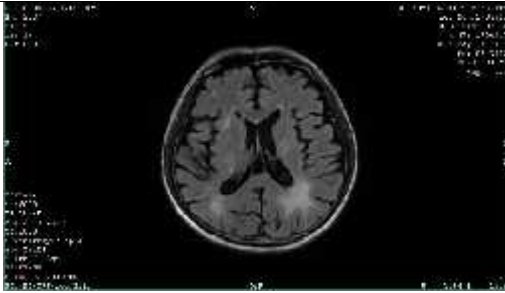
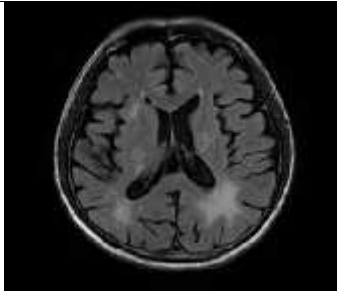
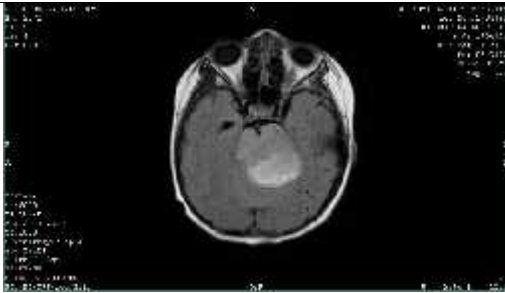
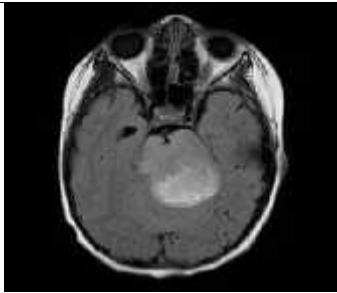

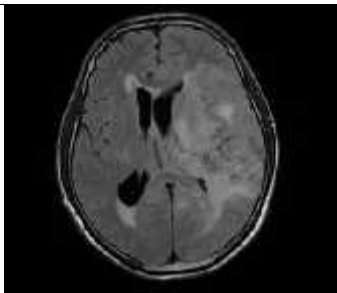
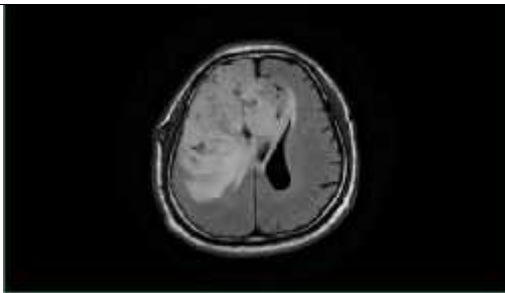
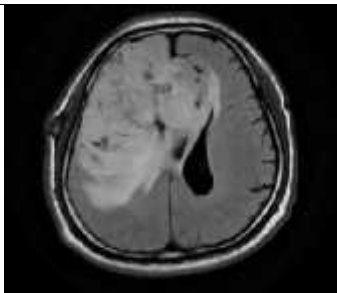
| | | | |
|----|----------|--|---|
| 20 | 2854.jpg |  |  |
| 21 | 2861.jpg |  |  |
| 22 | 2871.jpg |  |  |
| 23 | 2921.jpg |  |  |
| 24 | 2931.jpg |  |  |

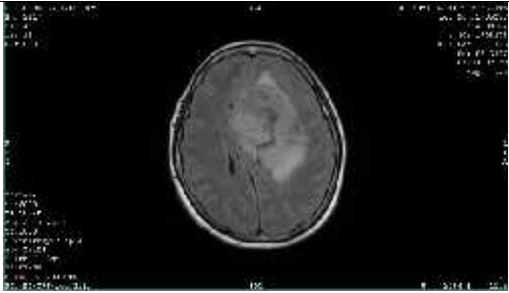
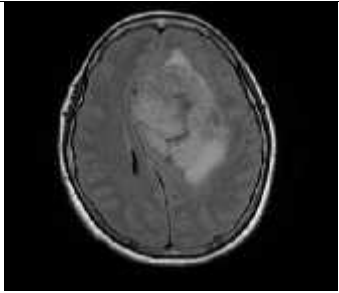
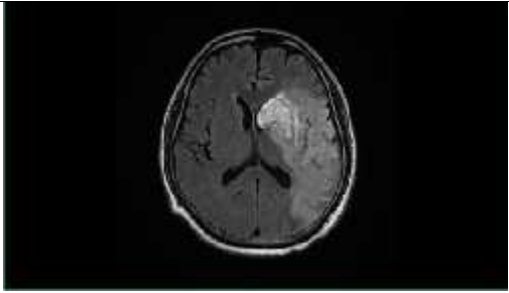
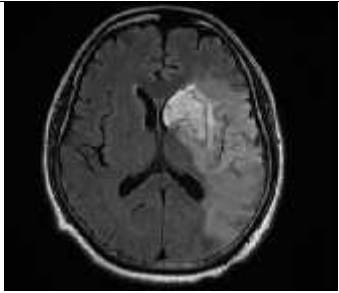
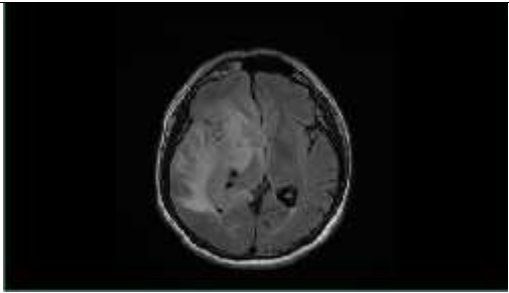
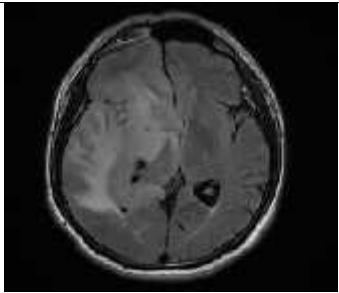
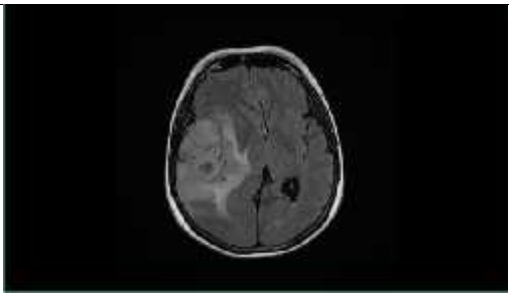
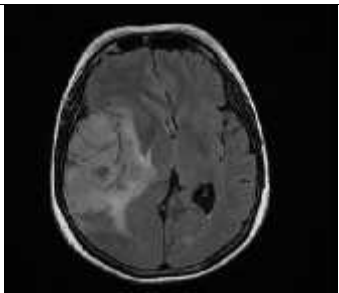

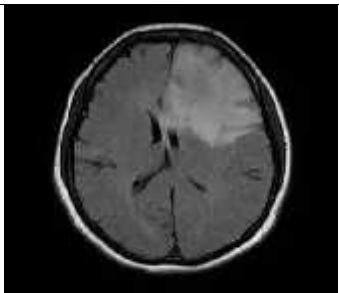
| | | | |
|----|----------|--|---|
| 25 | 2939.jpg |  |  |
| 26 | 3035.jpg |  |  |
| 27 | 3119.jpg |  |  |
| 28 | 3125.jpg |  |  |
| 29 | 3161.jpg |  |  |

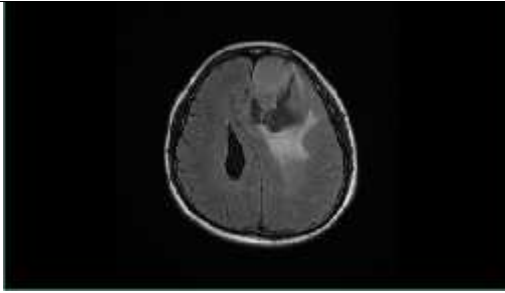
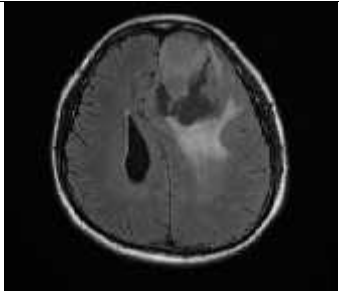
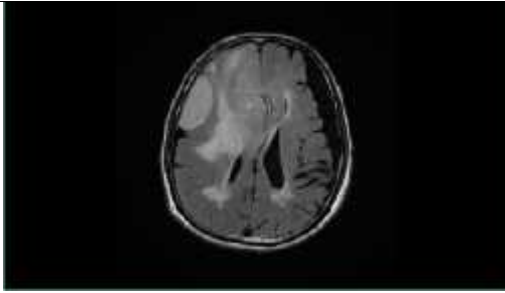
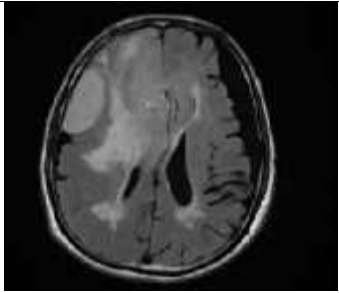

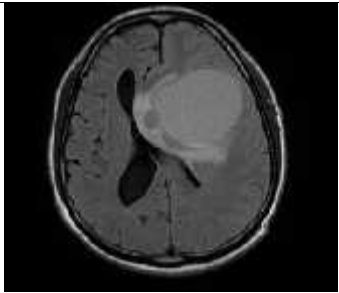
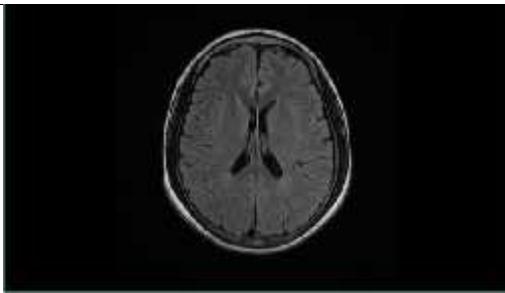
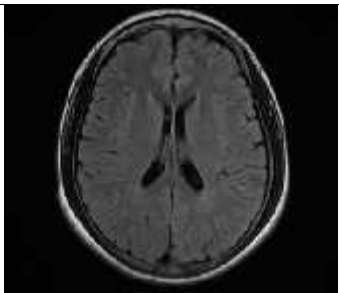
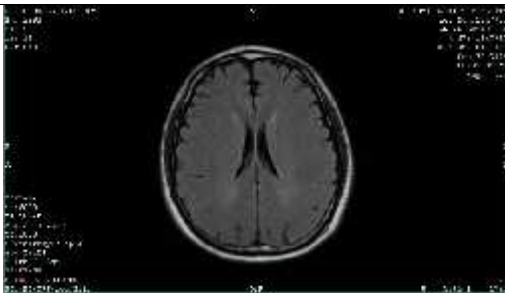
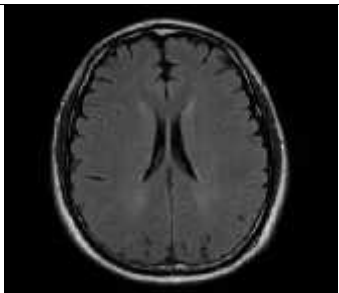
| | | | |
|----|----------|--|---|
| 30 | 3218.jpg |  |  |
| 31 | 3234.jpg |  |  |
| 32 | 3249.jpg |  |  |
| 33 | 3296.jpg |  |  |
| 34 | 3302.jpg |  |  |


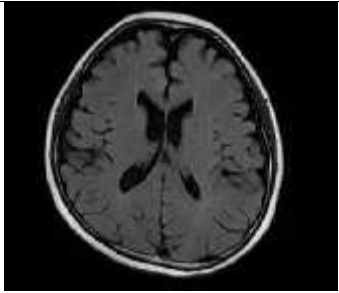

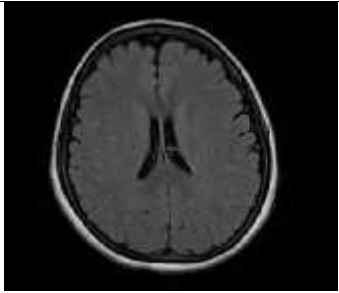

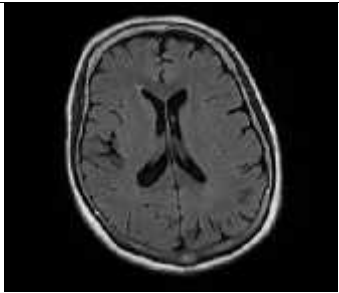

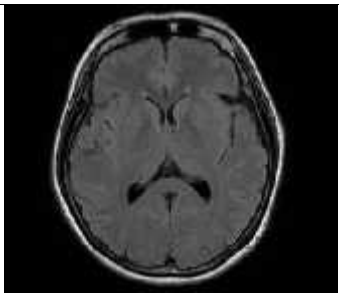

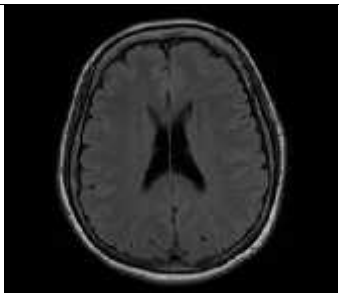
| | | | |
|----|----------|--|---|
| 35 | 3303.jpg |  |  |
| 36 | 3321.jpg |  |  |
| 37 | 3344.jpg |  |  |
| 38 | 3354.jpg |  |  |
| 39 | 3425.jpg |  |  |





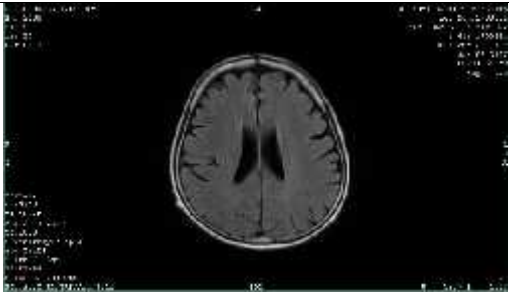
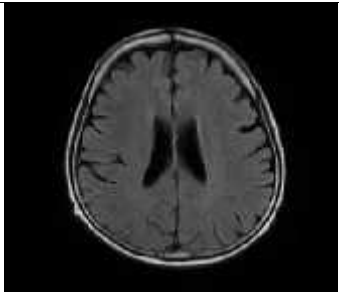



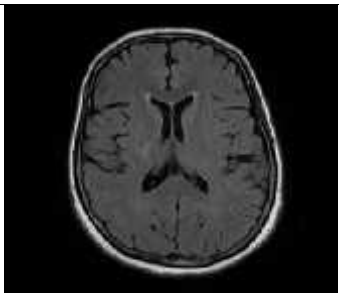
| | | | |
|----|----------|--|---|
| 40 | 3467.jpg |  |  |
| 41 | 3468.jpg |  |  |
| 42 | 3471.jpg |  |  |
| 43 | 3482.jpg |  |  |
| 44 | 3507.jpg |  |  |


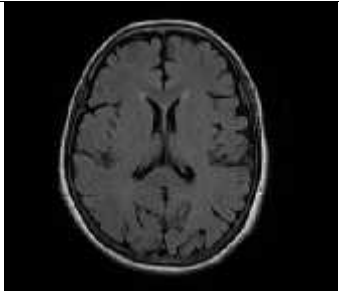

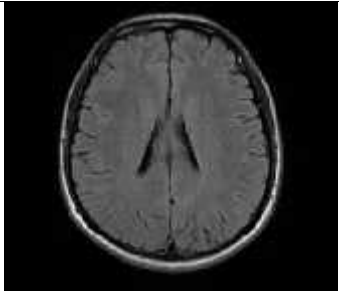

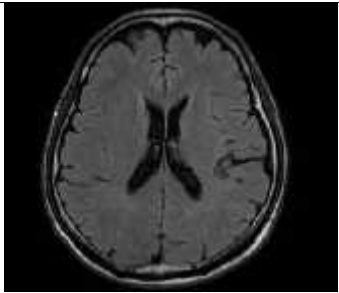

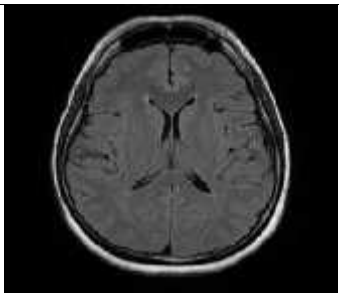
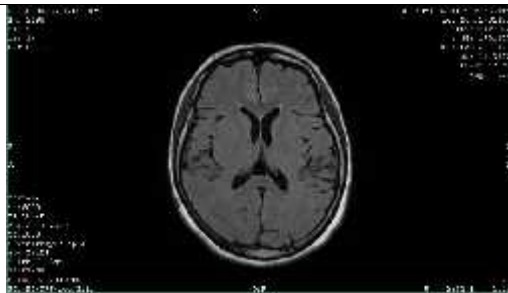
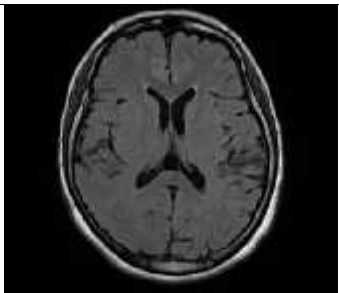
| | | | |
|----|----------|--|---|
| 45 | 3537.jpg |  |  |
| 46 | 3537.jpg |  |  |
| 47 | 3572.jpg |  |  |
| 48 | 3590.jpg |  |  |
| 49 | 3606.jpg |  |  |





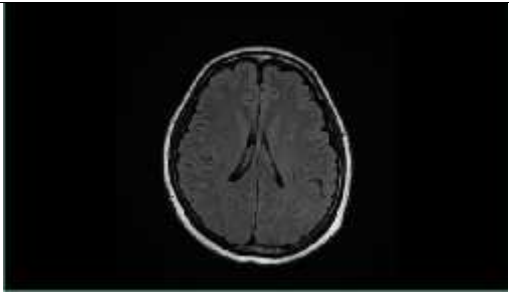
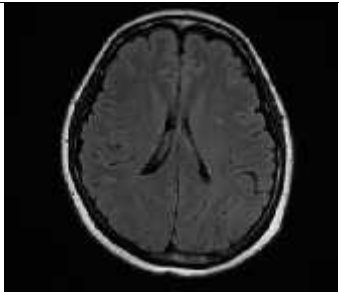

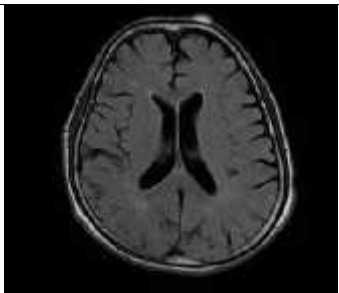

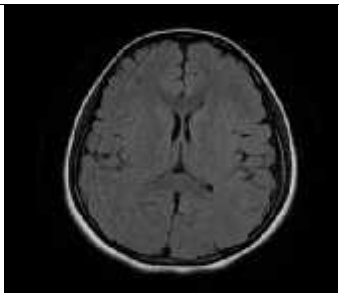
| | | | |
|----|----------|--|---|
| 50 | 3617.jpg |  |  |
| 51 | 3680.jpg |  |  |
| 52 | 3688.jpg |  |  |
| 53 | 3691.jpg |  |  |
| 54 | 3724.jpg |  |  |


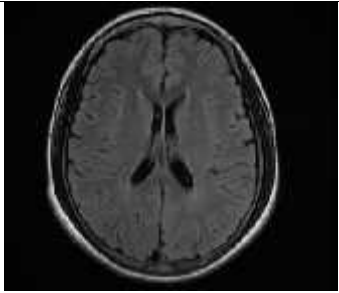
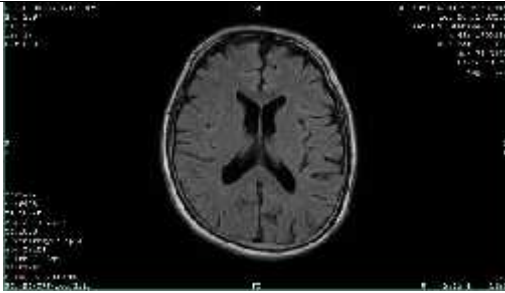
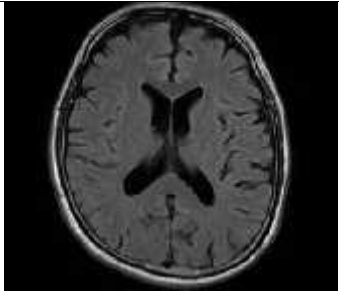

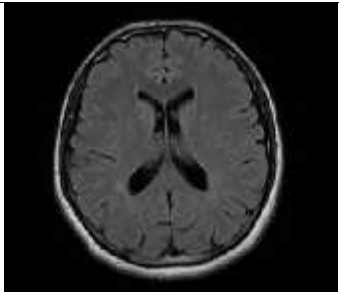

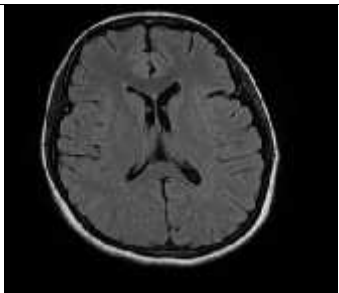
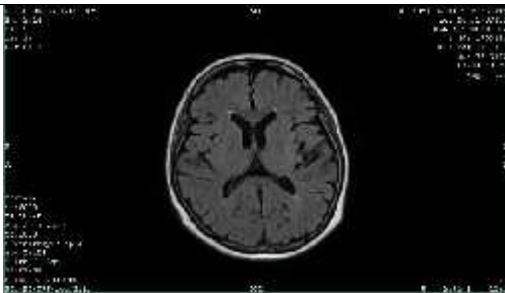
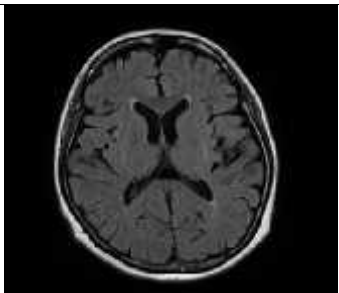
| | | | |
|----|----------|--|---|
| 55 | 3736.jpg |  |  |
| 56 | 3777.jpg |  |  |
| 57 | 3801.jpg |  |  |
| 58 | 2888.jpg |  |  |
| 59 | 2993.jpg |  |  |


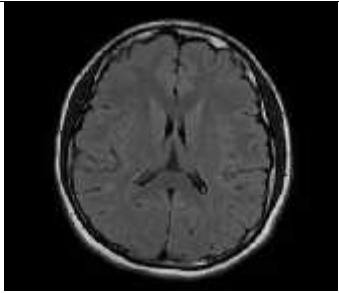

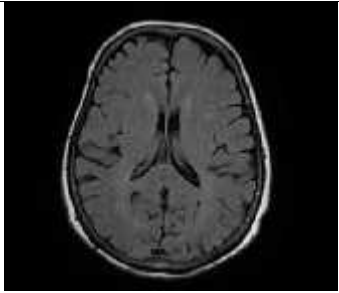
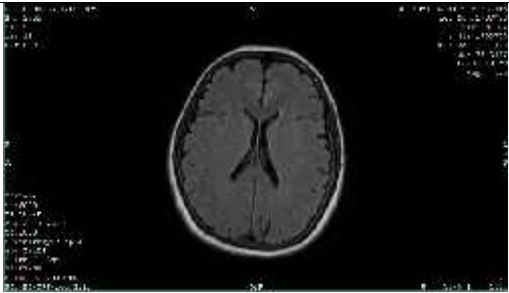
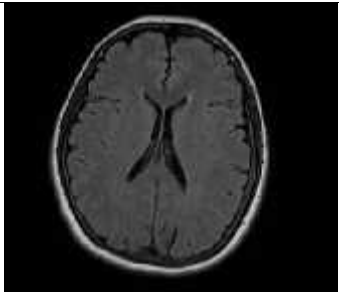

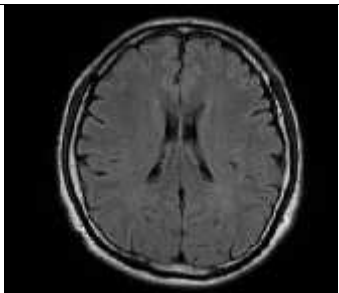

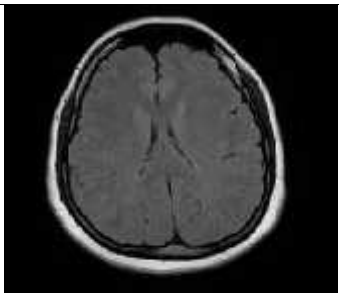
| | | | |
|----|----------|--|---|
| 60 | 2994.jpg |  |  |
| 61 | 3001.jpg |  |  |
| 62 | 3007.jpg |  |  |
| 63 | 3081.jpg |  |  |
| 64 | 3081.jpg |  |  |


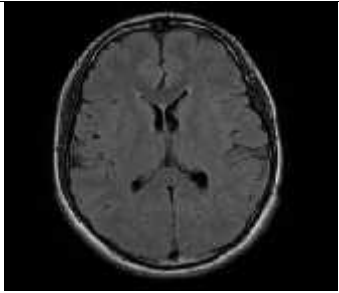

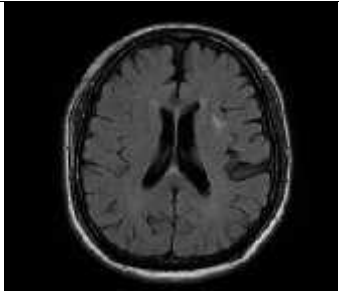

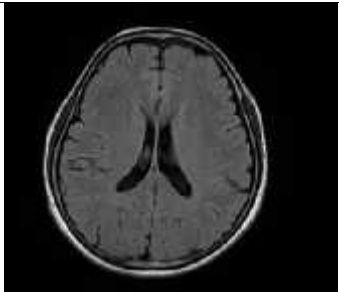

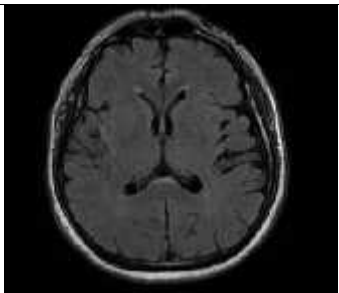

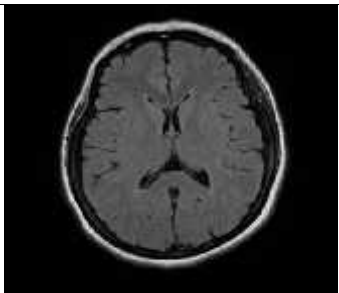
| | | | |
|----|----------|--|---|
| 65 | 3083.jpg |  |  |
| 66 | 3096.jpg |  |  |
| 67 | 3100.jpg |  |  |
| 68 | 3106.jpg |  |  |
| 69 | 3126.jpg |  |  |

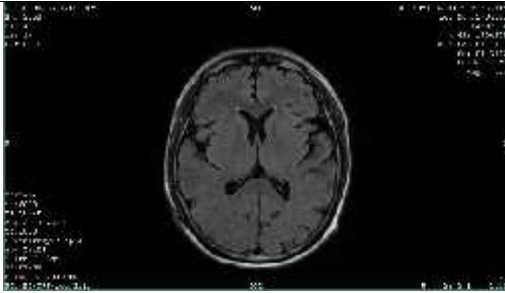
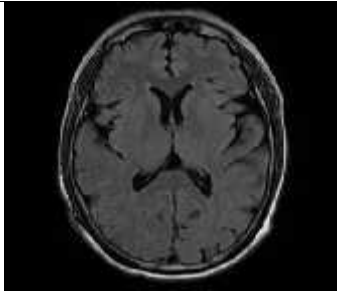

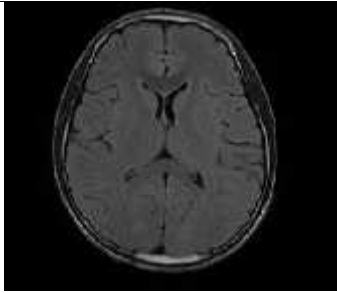

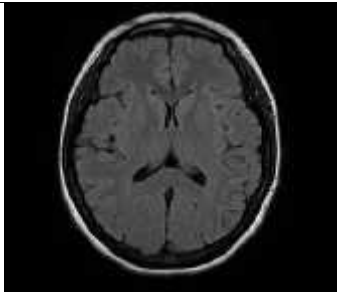

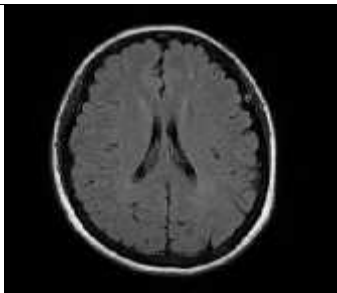

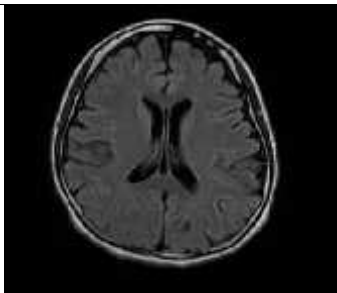
| | | | |
|----|----------|--|---|
| 70 | 3127.jpg |  |  |
| 71 | 3139.jpg |  |  |
| 72 | 3140.jpg |  |  |
| 73 | 3144.jpg |  |  |
| 74 | 3190.jpg |  |  |


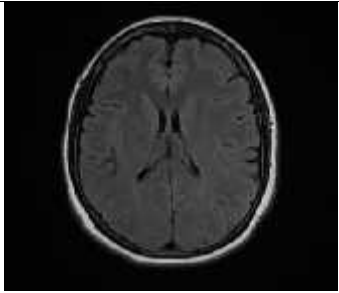

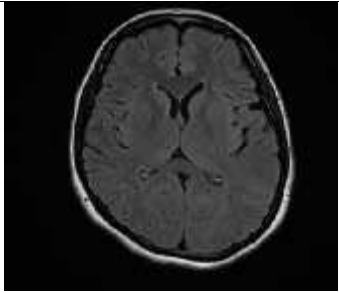
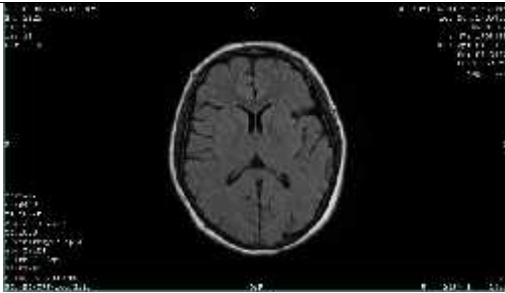
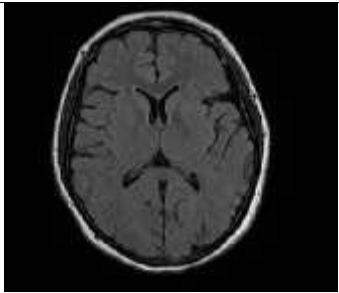

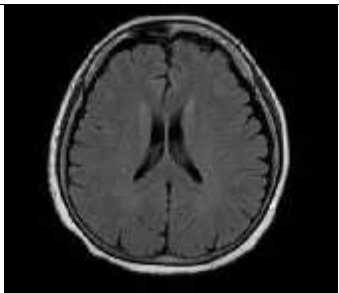


| | | | |
|----|----------|--|---|
| 75 | 3196.jpg |  |  |
| 76 | 3231.jpg |  |  |
| 77 | 3254.jpg |  |  |
| 78 | 3260.jpg |  |  |
| 79 | 3282.jpg |  |  |

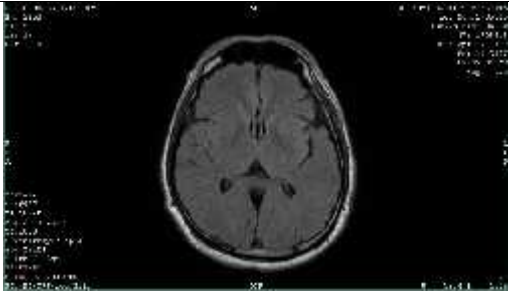
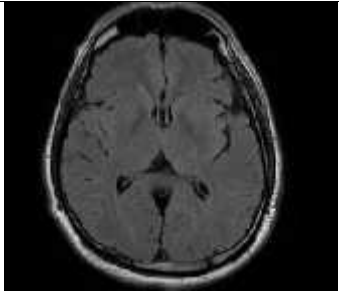

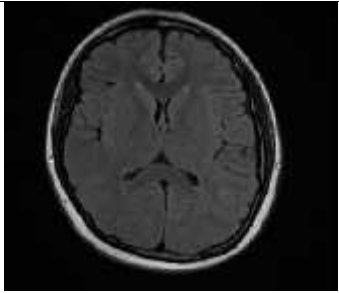
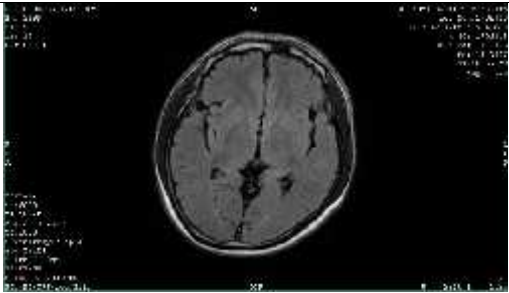
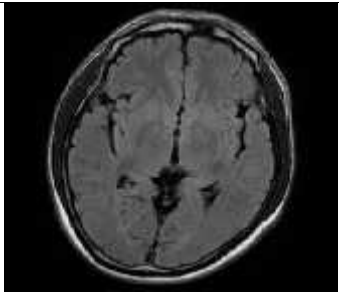

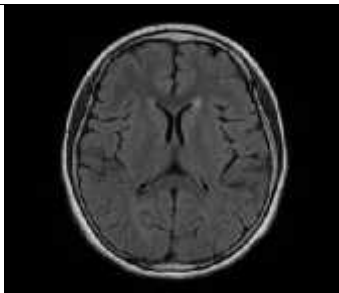

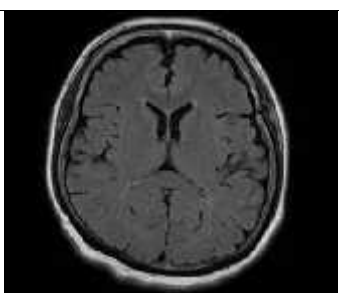
| | | | |
|----|----------|--|---|
| 80 | 3321.jpg |  |  |
| 81 | 3391.jpg |  |  |
| 82 | 3398.jpg |  |  |
| 83 | 3411.jpg |  |  |
| 84 | 3414.jpg |  |  |


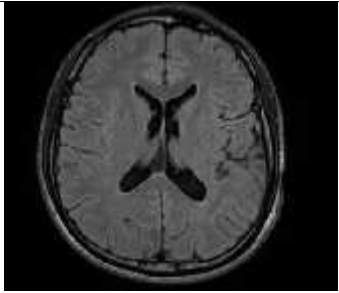

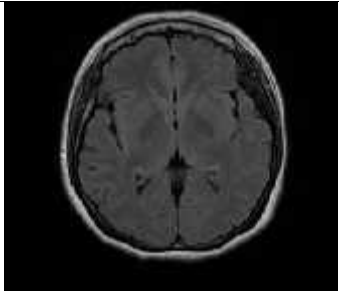
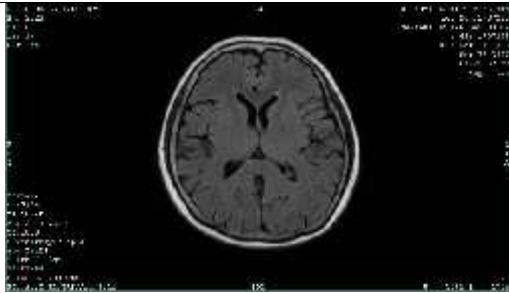
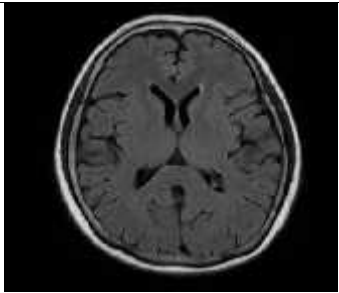

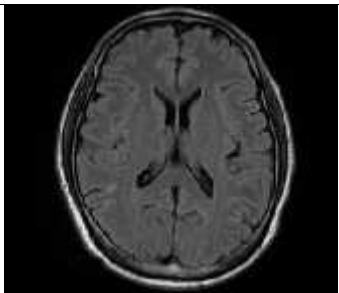

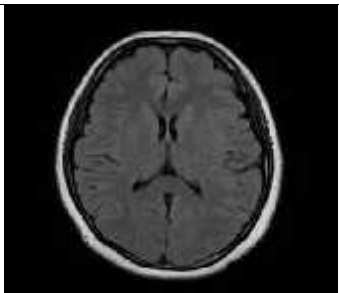
| | | | |
|----|----------|--|---|
| 85 | 3418.jpg |  |  |
| 86 | 3434.jpg |  |  |
| 87 | 3455.jpg |  |  |
| 88 | 3467.jpg |  |  |
| 89 | 3473.jpg |  |  |

| | | | |
|----|----------|--|---|
| 90 | 3475.jpg |  |  |
| 91 | 3477.jpg |  |  |
| 92 | 3484.jpg |  |  |
| 93 | 3487.jpg |  |  |
| 94 | 3552.jpg |  |  |

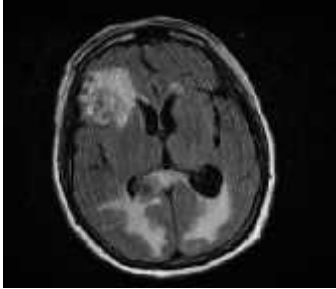

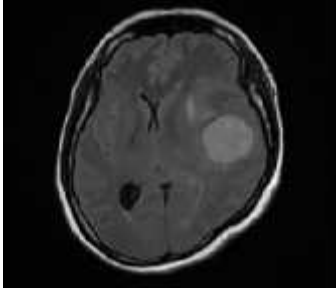

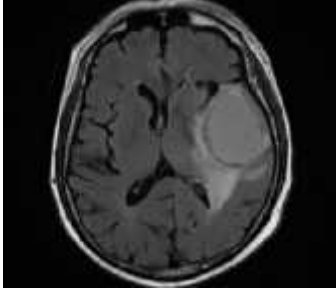

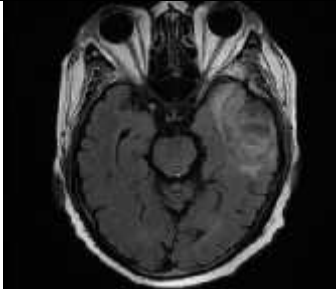

| | | | |
|----|----------|--|---|
| 95 | 3553.jpg |  |  |
| 96 | 3554.jpg |  |  |
| 97 | 3565.jpg |  |  |
| 98 | 3569.jpg |  |  |
| 99 | 3576.jpg |  |  |

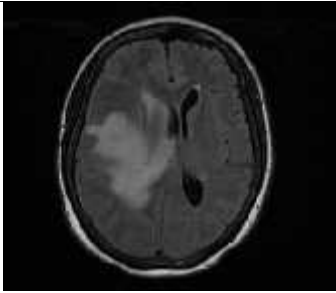

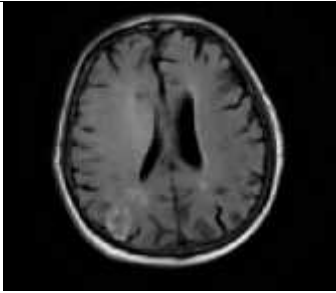

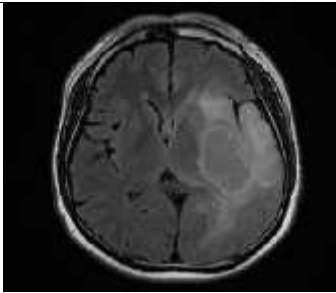

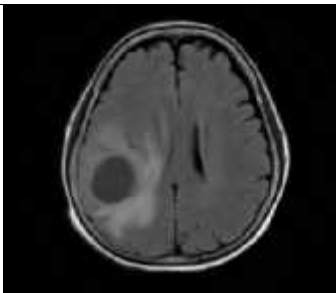

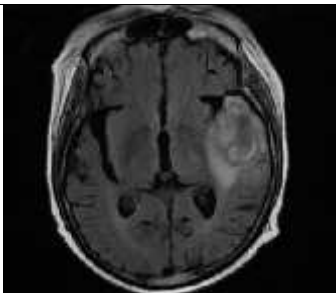
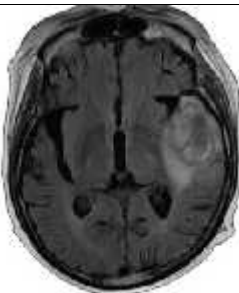
| | | | |
|-----|----------|--|---|
| 100 | 3605.jpg |  |  |
| 101 | 3615.jpg |  |  |
| 102 | 3625.jpg |  |  |
| 103 | 3630.jpg |  |  |
| 104 | 3644.jpg |  |  |

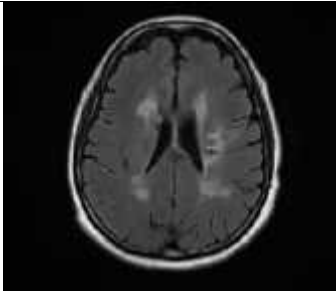

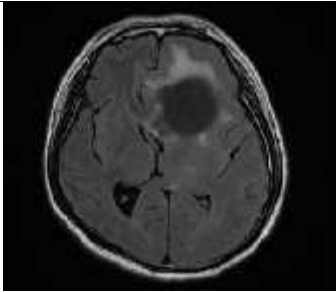
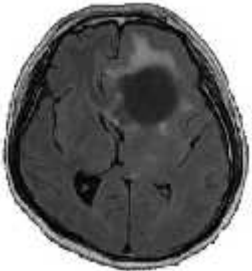
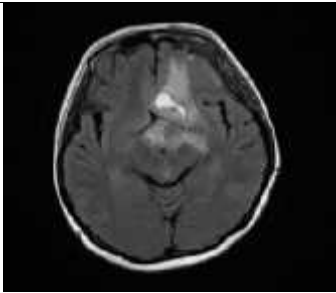

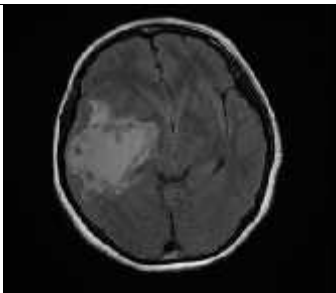

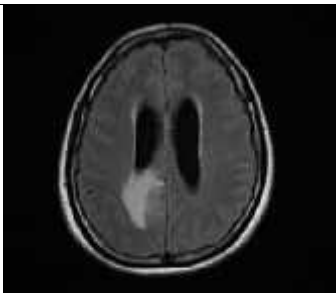

| | | | |
|-----|----------|--|---|
| 105 | 3653.jpg |  |  |
| 106 | 3681.jpg |  |  |
| 107 | 3691.jpg |  |  |
| 108 | 3720.jpg |  |  |
| 109 | 3721.jpg |  |  |

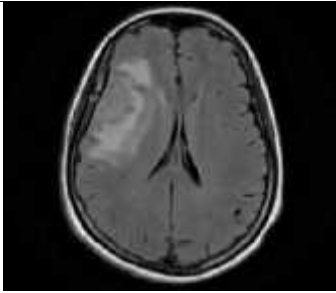

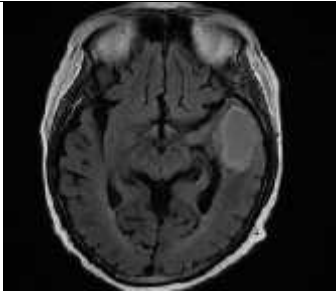

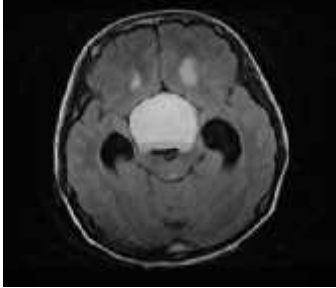

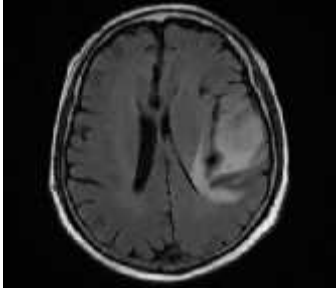

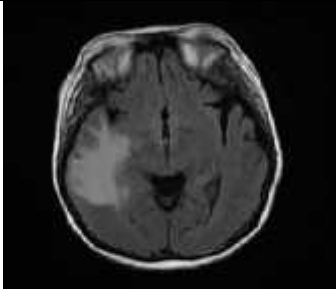

| | | | |
|-----|----------|--|---|
| 110 | 3727.jpg |  |  |
| 111 | 3810.jpg |  |  |
| 112 | 3823.jpg |  |  |
| 113 | 2828.jpg |  |  |
| 114 | 3834.jpg |  |  |

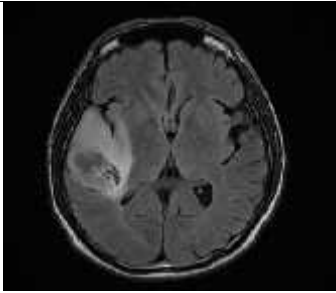

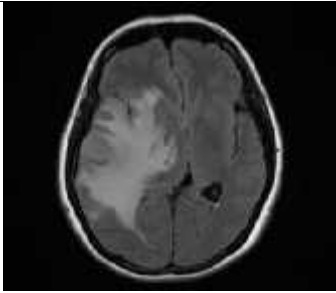

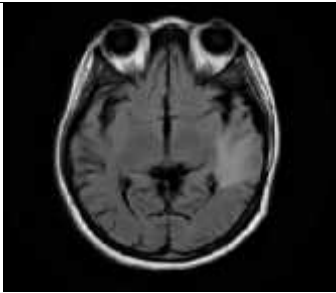

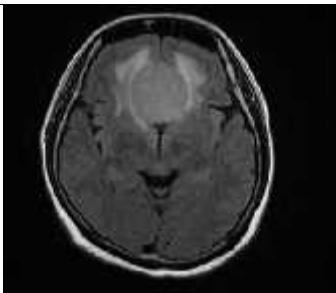

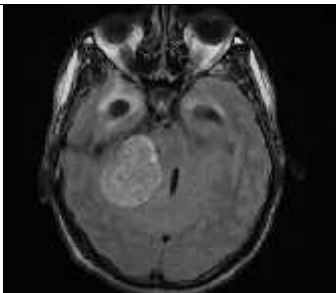
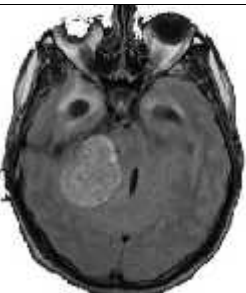
Lampiran 3. Hasil Penghilangan *Background* Citra

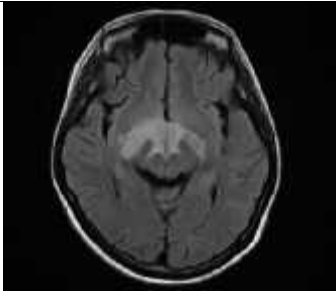

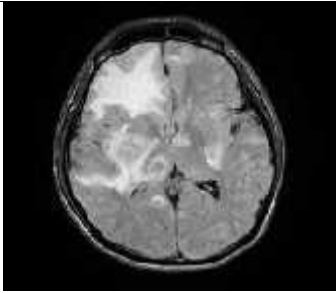

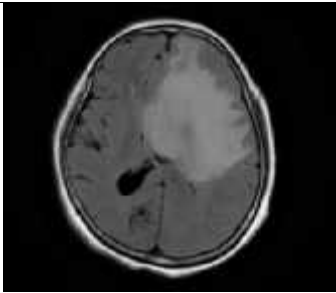

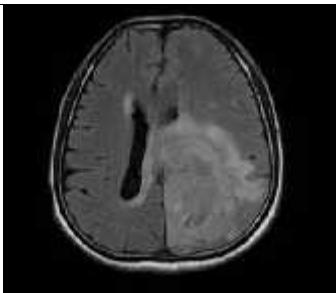

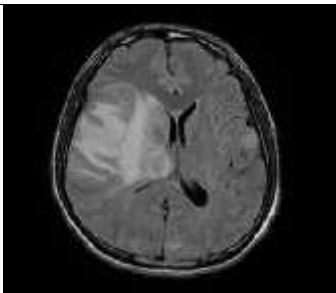

| No | Nama File | Citra Hasil Potong | Citra Hasil Penghilangan <i>Background</i> |
|----|-----------|---|--|
| 1 | 2731.jpg |  |  |
| 2 | 2765.jpg |  |  |
| 3 | 2801.jpg |  |  |
| 4 | 2810.jpg |  |  |

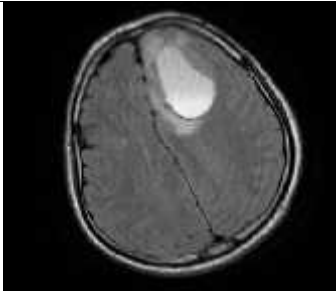

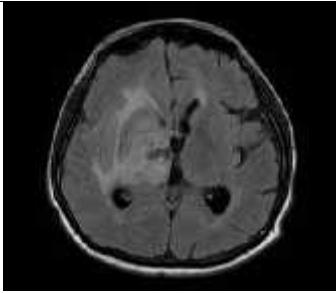

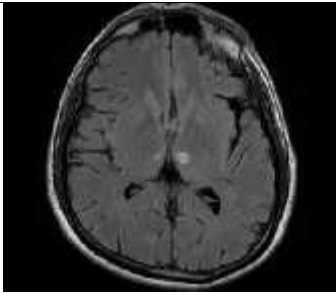

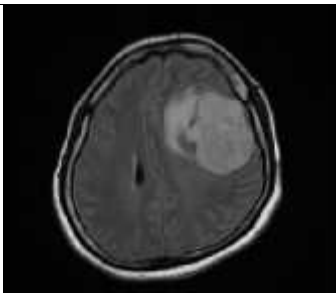

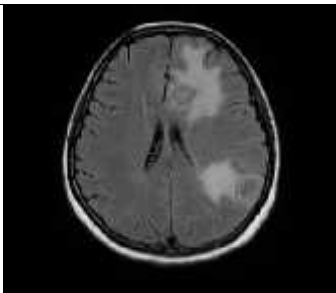

| | | | |
|---|----------|---|--|
| 5 | 2811.jpg |  |  |
| 6 | 2815.jpg |  |  |
| 7 | 2820.jpg |  |  |
| 8 | 2823.jpg |  |  |
| 9 | 2827.jpg |  |  |

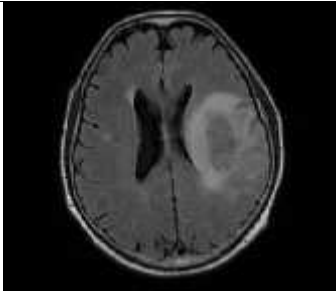

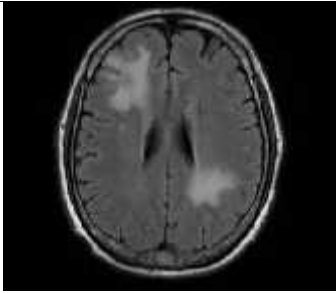

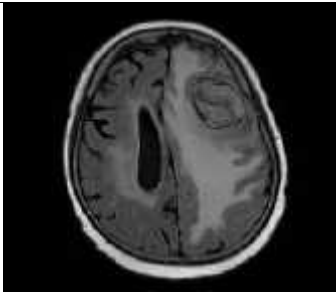

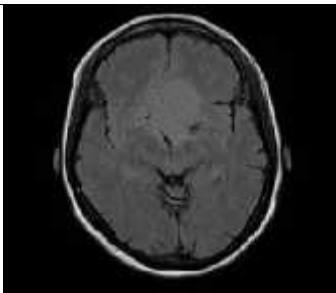

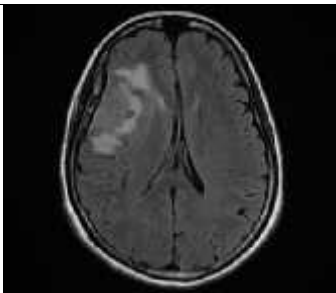

| | | | |
|----|----------|---|--|
| 10 | 2819.jpg |  |  |
| 11 | 2834.jpg |  |  |
| 12 | 2835.jpg |  |  |
| 13 | 2839.jpg |  |  |
| 14 | 2841.jpg |  |  |

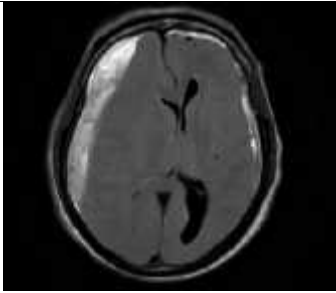

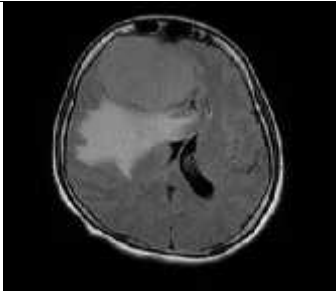

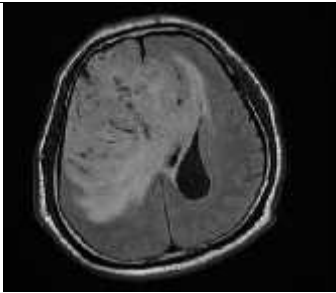

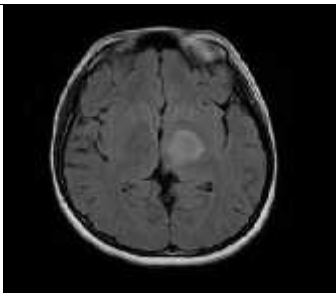
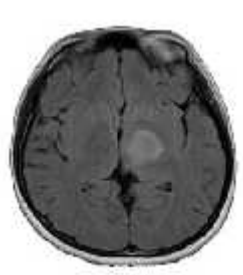
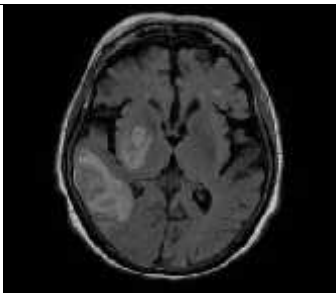

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|----|----------|---|--|
| 15 | 2842.jpg |  |  |
| 16 | 2844.jpg |  |  |
| 17 | 2845.jpg |  |  |
| 18 | 2847.jpg |  |  |
| 19 | 2852.jpg |  |  |

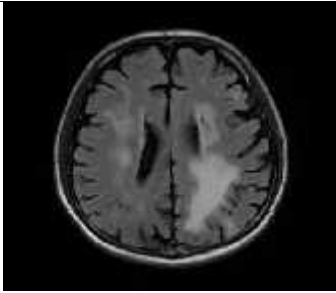

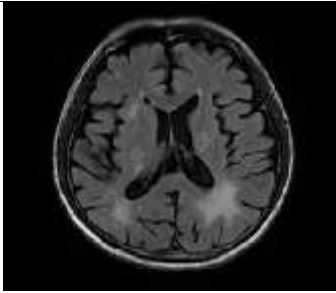

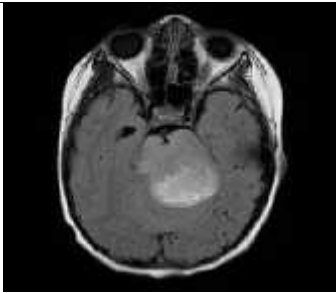

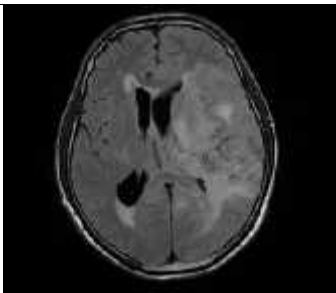

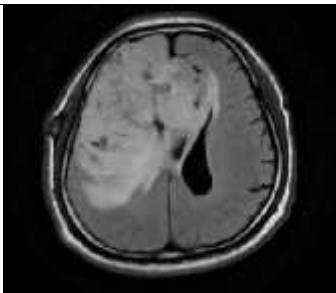

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|----|----------|---|--|
| 20 | 2854.jpg |  |  |
| 21 | 2861.jpg |  |  |
| 22 | 2871.jpg |  |  |
| 23 | 2921.jpg |  |  |
| 24 | 2931.jpg |  |  |

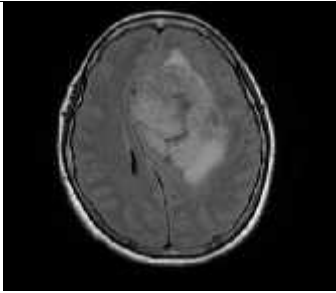

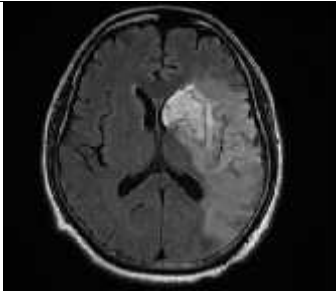

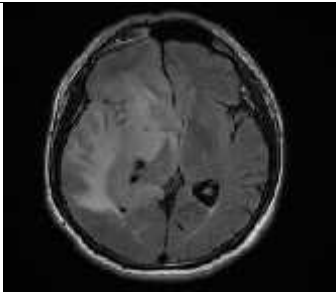

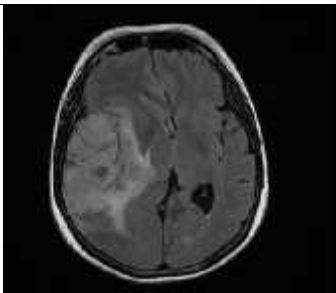

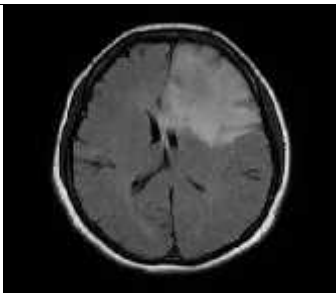

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|----|----------|---|--|
| 25 | 2939.jpg |  |  |
| 26 | 3035.jpg |  |  |
| 27 | 3119.jpg |  |  |
| 28 | 3125.jpg |  |  |
| 29 | 3161.jpg |  |  |

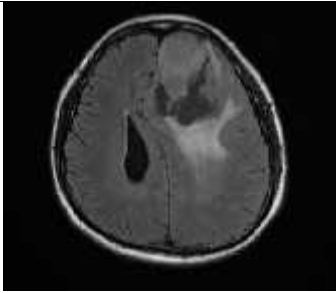

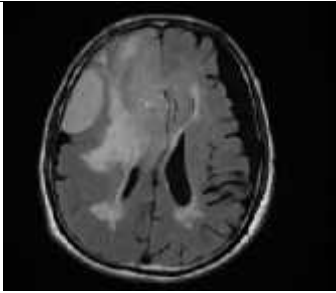

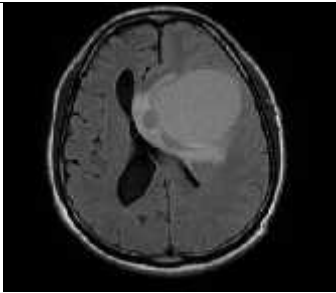

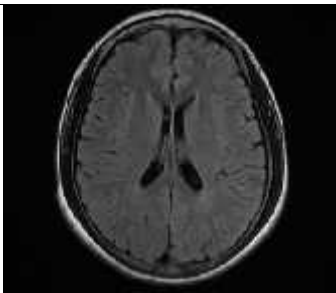

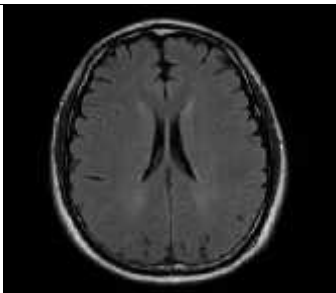

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|----|----------|---|--|
| 30 | 3218.jpg |  |  |
| 31 | 3234.jpg |  |  |
| 32 | 3249.jpg |  |  |
| 33 | 3296.jpg |  |  |
| 34 | 3302.jpg |  |  |

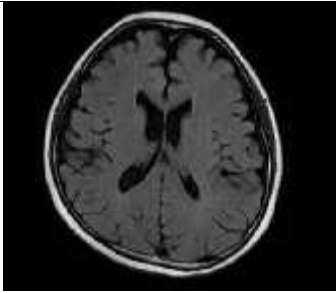

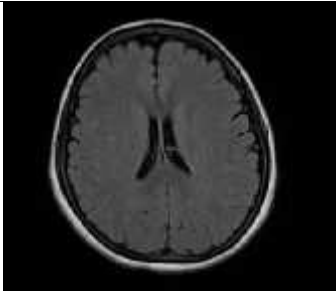

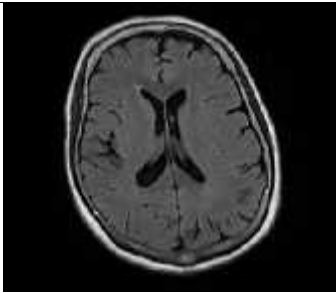

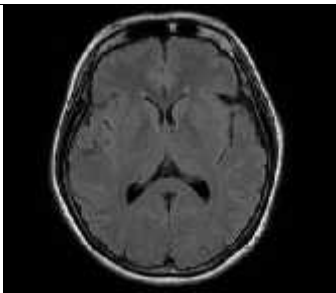

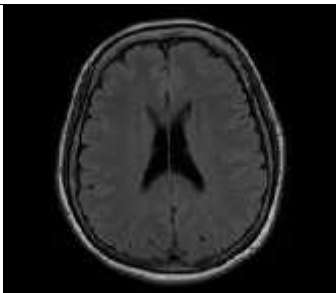

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|----|----------|---|--|
| 35 | 3303.jpg |  |  |
| 36 | 3321.jpg |  |  |
| 37 | 3344.jpg |  |  |
| 38 | 3354.jpg |  |  |
| 39 | 3425.jpg |  |  |





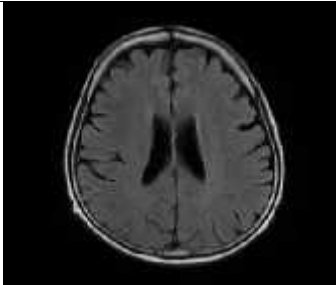



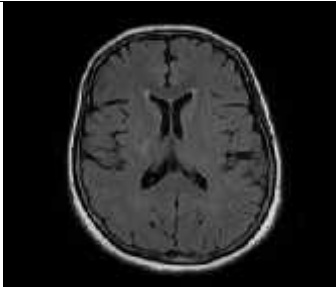

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|----|----------|---|--|
| 40 | 3467.jpg |  |  |
| 41 | 3468.jpg |  |  |
| 42 | 3471.jpg |  |  |
| 43 | 3482.jpg |  |  |
| 44 | 3507.jpg |  |  |

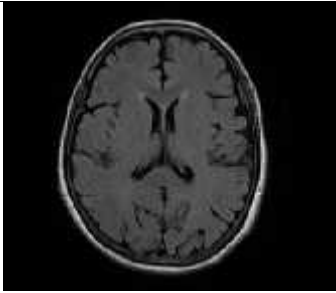

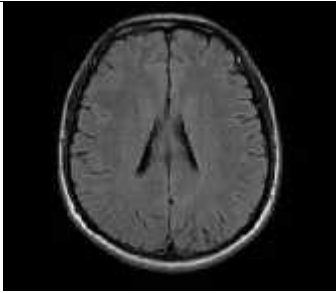

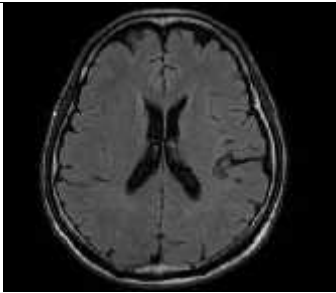

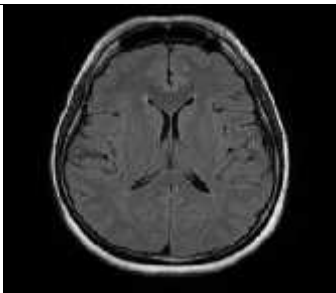

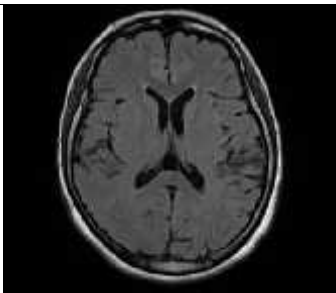

| | | | |
|----|----------|---|--|
| 45 | 3537.jpg |  |  |
| 46 | 3537.jpg |  |  |
| 47 | 3572.jpg |  |  |
| 48 | 3590.jpg |  |  |
| 49 | 3606.jpg |  |  |



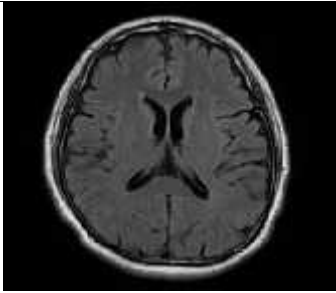

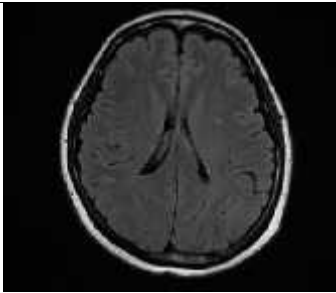

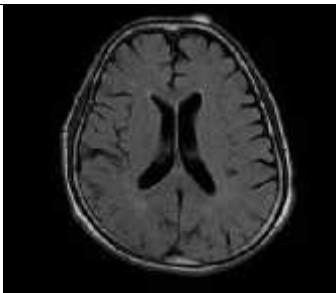

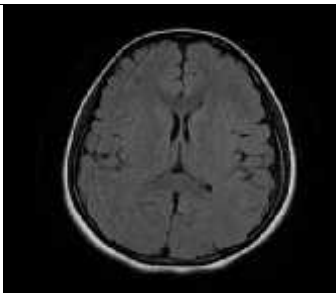

| | | | |
|----|----------|---|--|
| 50 | 3617.jpg |  |  |
| 51 | 3680.jpg |  |  |
| 52 | 3688.jpg |  |  |
| 53 | 3691.jpg |  |  |
| 54 | 3724.jpg |  |  |

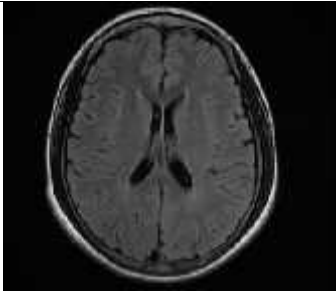

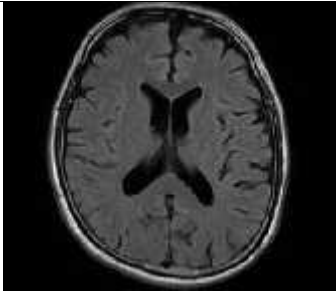

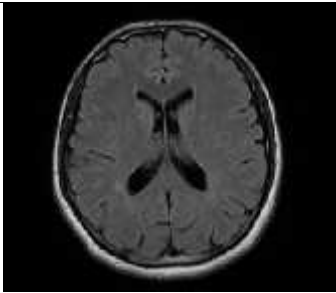

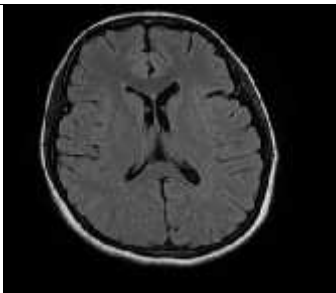

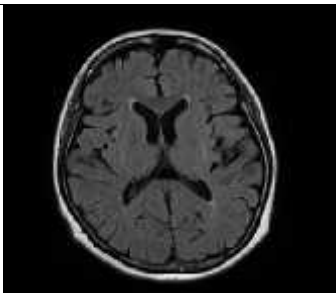

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|----|----------|---|--|
| 55 | 3736.jpg |  |  |
| 56 | 3777.jpg |  |  |
| 57 | 3801.jpg |  |  |
| 58 | 2888.jpg |  |  |
| 59 | 2993.jpg |  |  |

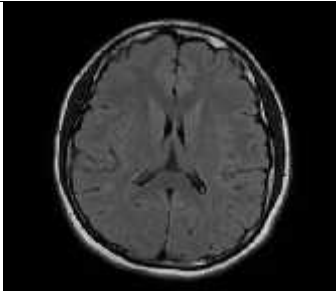

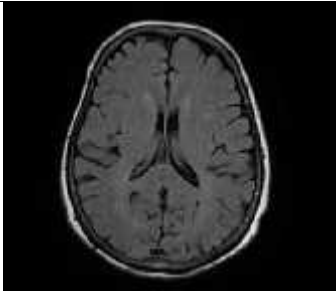

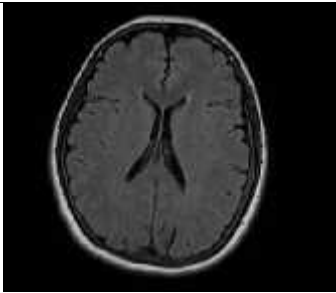

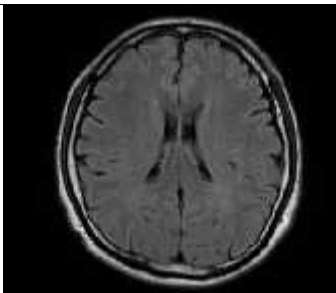

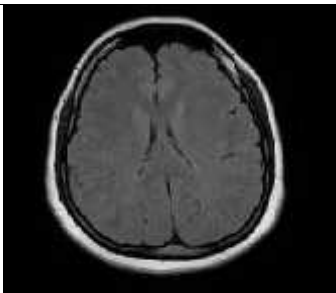

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|----|----------|---|--|
| 60 | 2994.jpg |  |  |
| 61 | 3001.jpg |  |  |
| 62 | 3007.jpg |  |  |
| 63 | 3081.jpg |  |  |
| 64 | 3081.jpg |  |  |

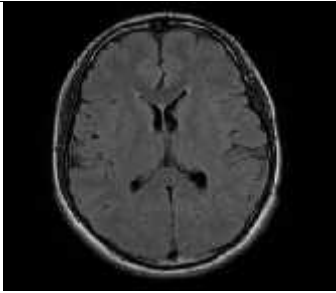

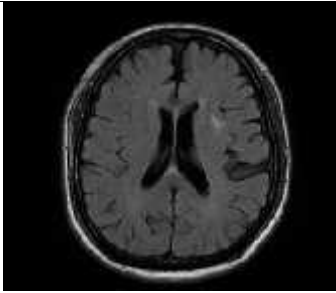

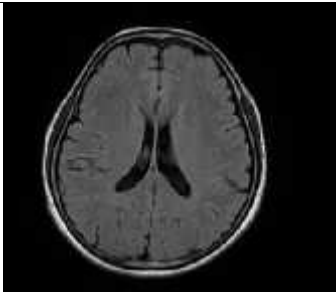

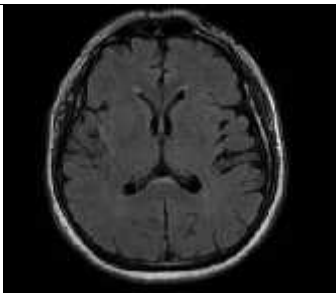

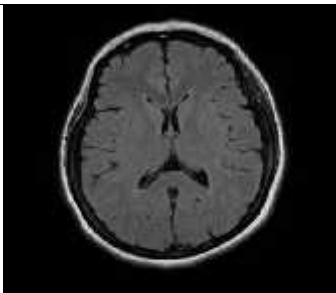

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|----|----------|---|--|
| 65 | 3083.jpg |  |  |
| 66 | 3096.jpg |  |  |
| 67 | 3100.jpg |  |  |
| 68 | 3106.jpg |  |  |
| 69 | 3126.jpg |  |  |

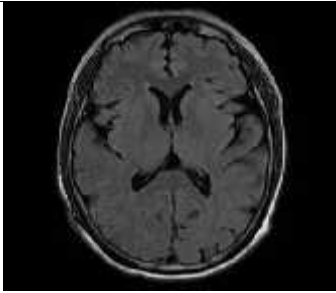

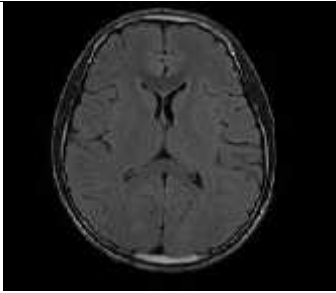

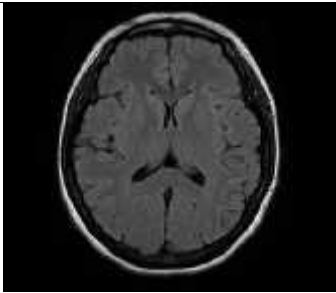

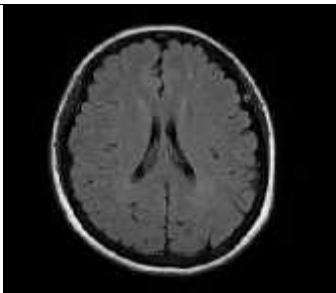

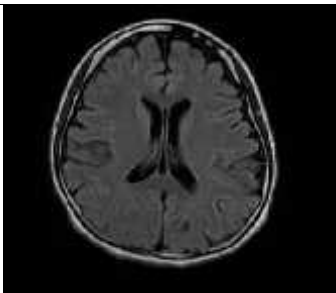

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|----|----------|---|--|
| 70 | 3127.jpg |  |  |
| 71 | 3139.jpg |  |  |
| 72 | 3140.jpg |  |  |
| 73 | 3144.jpg |  |  |
| 74 | 3190.jpg |  |  |

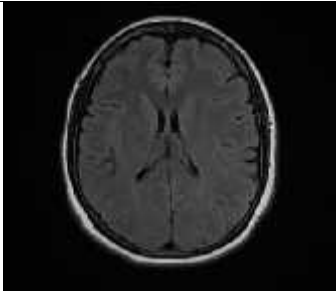

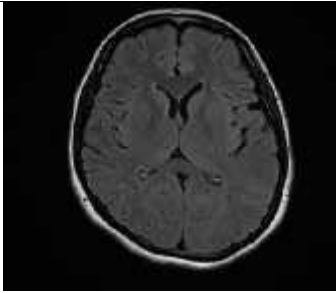

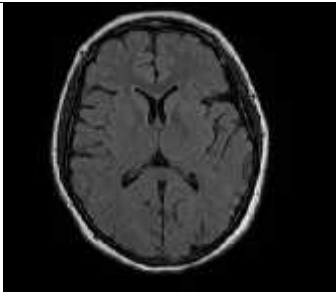

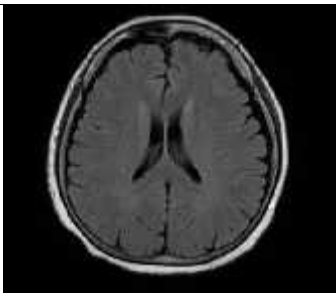



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|----|----------|---|--|
| 75 | 3196.jpg |  |  |
| 76 | 3231.jpg |  |  |
| 77 | 3254.jpg |  |  |
| 78 | 3260.jpg |  |  |
| 79 | 3282.jpg |  |  |

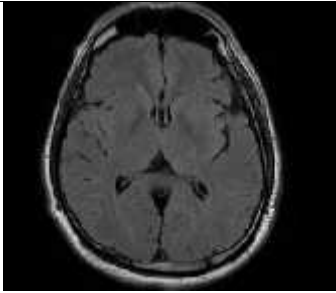

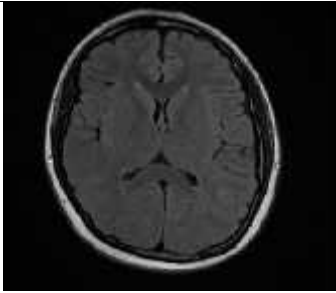

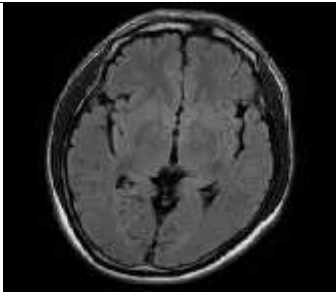

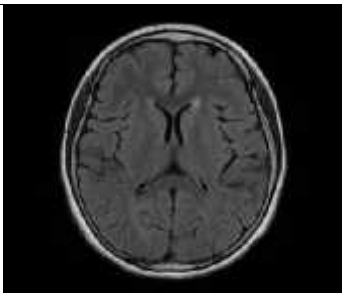

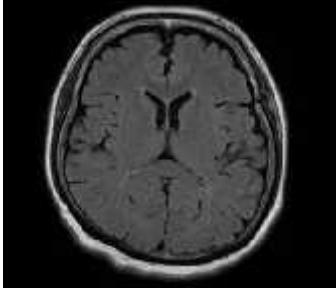

| | | | |
|----|----------|---|--|
| 80 | 3321.jpg |  |  |
| 81 | 3391.jpg |  |  |
| 82 | 3398.jpg |  |  |
| 83 | 3411.jpg |  |  |
| 84 | 3414.jpg |  |  |



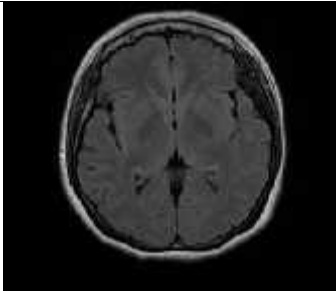

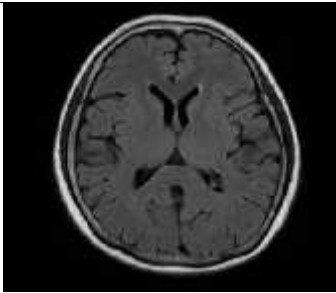

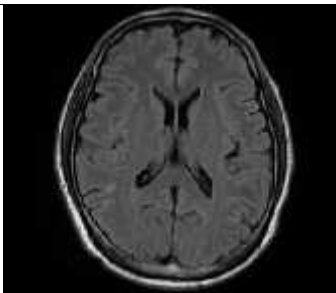

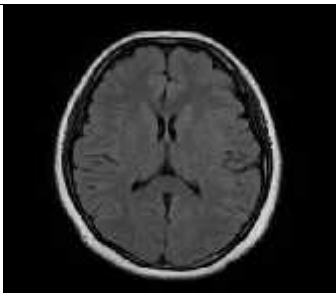

| | | | |
|----|----------|---|--|
| 85 | 3418.jpg |  |  |
| 86 | 3434.jpg |  |  |
| 87 | 3455.jpg |  |  |
| 88 | 3467.jpg |  |  |
| 89 | 3473.jpg |  |  |

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|----|----------|---|--|
| 90 | 3475.jpg |  |  |
| 91 | 3477.jpg |  |  |
| 92 | 3484.jpg |  |  |
| 93 | 3487.jpg |  |  |
| 94 | 3552.jpg |  |  |

| | | | |
|----|----------|---|--|
| 95 | 3553.jpg |  |  |
| 96 | 3554.jpg |  |  |
| 97 | 3565.jpg |  |  |
| 98 | 3569.jpg |  |  |
| 99 | 3576.jpg |  |  |

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|-----|----------|---|--|
| 100 | 3605.jpg |  |  |
| 101 | 3615.jpg |  |  |
| 102 | 3625.jpg |  |  |
| 103 | 3630.jpg |  |  |
| 104 | 3644.jpg |  |  |

| | | | |
|-----|----------|---|--|
| 105 | 3653.jpg |  |  |
| 106 | 3681.jpg |  |  |
| 107 | 3691.jpg |  |  |
| 108 | 3720.jpg |  |  |
| 109 | 3721.jpg |  |  |

| | | | |
|-----|----------|---|--|
| 110 | 3727.jpg |  |  |
| 111 | 3810.jpg |  |  |
| 112 | 3823.jpg |  |  |
| 113 | 2828.jpg |  |  |
| 114 | 3834.jpg |  |  |

Lampiran 4. Script *m-file* GLCM Ekstraksi

```
function [out] = GLCM_Features4(glcmin,pairs)
% If 'pairs' not entered: set pairs to 0
if ((nargin > 2) || (nargin == 0))
    error('Too many or too few input arguments. Enter GLCM and pairs.');
```

```
elseif ( (nargin == 2) )
    if ((size(glcmin,1) <= 1) || (size(glcmin,2) <= 1))
        error('The GLCM should be a 2-D or 3-D matrix.');
```

```
elseif ( size(glcmin,1) ~= size(glcmin,2) )
    error('Each GLCM should be square with NumLevels rows and NumLevels cols');
```

```
end
elseif (nargin == 1) % only GLCM is entered
    pairs = 0; % default is numbers and input 1 for percentage
    if ((size(glcmin,1) <= 1) || (size(glcmin,2) <= 1))
        error('The GLCM should be a 2-D or 3-D matrix.');
```

```
elseif ( size(glcmin,1) ~= size(glcmin,2) )
    error('Each GLCM should be square with NumLevels rows and NumLevels cols');
```

```
end
end
format longe
if (pairs == 1)
    newn = 1;
    for nglcm = 1:2:size(glcmin,3)
        glcm(:, :, newn) = glcmin(:, :, nglcm) + glcmin(:, :, nglcm+1);
        newn = newn + 1;
    end
    elseif (pairs == 0)
        glcm = glcmin;
end
size_glcmin_1 = size(glcmin,1);
size_glcmin_2 = size(glcmin,2);
size_glcmin_3 = size(glcmin,3);
```

```

% checked
out.autoc = zeros(1,size_glcmm_3); % Autocorrelation: [2]
out.contr = zeros(1,size_glcmm_3); % Contrast: matlab/[1,2]
out.corrmm = zeros(1,size_glcmm_3); % Correlation: matlab
out.corrp = zeros(1,size_glcmm_3); % Correlation: [1,2]
out.cprom = zeros(1,size_glcmm_3); % Cluster Prominence: [2]
out.cshad = zeros(1,size_glcmm_3); % Cluster Shade: [2]
out.dissi = zeros(1,size_glcmm_3); % Dissimilarity: [2]
out.energ = zeros(1,size_glcmm_3); % Energy: matlab / [1,2]
out.entro = zeros(1,size_glcmm_3); % Entropy: [2]
out.homom = zeros(1,size_glcmm_3); % Homogeneity: matlab
out.homop = zeros(1,size_glcmm_3); % Homogeneity: [2]
out.maxpr = zeros(1,size_glcmm_3); % Maximum probability: [2]
out.sosvh = zeros(1,size_glcmm_3); % Sum of squares: Variance [1]
out.savgh = zeros(1,size_glcmm_3); % Sum average [1]
out.svarh = zeros(1,size_glcmm_3); % Sum variance [1]
out.senth = zeros(1,size_glcmm_3); % Sum entropy [1]
out.dvarh = zeros(1,size_glcmm_3); % Difference variance [4]
%out.dvarh2 = zeros(1,size_glcmm_3); % Difference variance [1]
out.denth = zeros(1,size_glcmm_3); % Difference entropy [1]
out.inflh = zeros(1,size_glcmm_3); % Information measure of
correlation1 [1]
out.inf2h = zeros(1,size_glcmm_3); % Informaiton measure of
correlation2 [1]
%out.mxcch = zeros(1,size_glcmm_3);% maximal correlation
coefficient [1]
%out.invdc = zeros(1,size_glcmm_3);% Inverse difference (INV) is
homom [3]
out.indnc = zeros(1,size_glcmm_3); % Inverse difference normalized
(INN) [3]
out.idmnc = zeros(1,size_glcmm_3); % Inverse difference moment
normalized [3]
glcm_sum = zeros(size_glcmm_3,1);
glcm_mean = zeros(size_glcmm_3,1);
glcm_var = zeros(size_glcmm_3,1);
% http://www.fp.ucalgary.ca/mhallbey/glcm\_mean.htm confuses the
range of
% i and j used in calculating the means and standard deviations.

```

```

% As of now I am not sure if the range of i and j should be [1:Ng]
or
% [0:Ng-1]. I am working on obtaining the values of mean and std
that get
% the values of correlation that are provided by matlab.
u_x = zeros(size_glc_m_3,1);
u_y = zeros(size_glc_m_3,1);
s_x = zeros(size_glc_m_3,1);
s_y = zeros(size_glc_m_3,1);
% checked p_x p_y p_xplusy p_xminusy
p_x = zeros(size_glc_m_1,size_glc_m_3); % Ng x #glcms[1]
p_y = zeros(size_glc_m_2,size_glc_m_3); % Ng x #glcms[1]
p_xplusy = zeros((size_glc_m_1*2 - 1),size_glc_m_3); %[1]
p_xminusy = zeros((size_glc_m_1),size_glc_m_3); %[1]
% checked hxy hxy1 hxy2 hx hy
hxy = zeros(size_glc_m_3,1);
hxy1 = zeros(size_glc_m_3,1);
hx = zeros(size_glc_m_3,1);
hy = zeros(size_glc_m_3,1);
hxy2 = zeros(size_glc_m_3,1);
corm = zeros(size_glc_m_3,1);
corp = zeros(size_glc_m_3,1);
for k = 1:size_glc_m_3
    glcm_sum(k) = sum(sum(glcm(:, :, k)));
    glcm(:, :, k) = glcm(:, :, k) ./ glcm_sum(k); % Normalize each glcm
    glcm_mean(k) = mean2(glcm(:, :, k)); % compute mean after norm
    glcm_var(k) = (std2(glcm(:, :, k)))^2;
    for i = 1:size_glc_m_1
        for j = 1:size_glc_m_2
            p_x(i,k) = p_x(i,k) + glcm(i,j,k);
            p_y(i,k) = p_y(i,k) + glcm(j,i,k);
            % taking i for j and j for i
            %if (ismember((i + j),[2:2*size_glc_m_1]))
            p_xplusy((i+j)-1,k) = p_xplusy((i+j)-1,k) +
glcm(i,j,k);
            %end
            %if (ismember(abs(i-j),[0:(size_glc_m_1-1)]))

```

```

        p_xminusy((abs(i-j))+1,k) = p_xminusy((abs(i- j))+1,k)
+...
        glcm(i,j,k); %end
    end
end
end
% marginal probabilities are now available [1]
% p_xminusy has +1 in index % for matlab (no 0 index)
% computing sum average, sum variance and sum entropy:
%Q = zeros(size(glcm));
i_matrix = repmat([1:size_glcmm_1]',1,size_glcmm_2);
j_matrix = repmat([1:size_glcmm_2],size_glcmm_1,1);
% i_index = [ 1 1 1 1 1 .... 2 2 2 2 2 ... ]
i_index = j_matrix(:);
% j_index = [ 1 2 3 4 5 .... 1 2 3 4 5 ... ]
j_index = i_matrix(:);
xplusy_index = [1:(2*(size_glcmm_1)-1)]';
xminusy_index = [0:(size_glcmm_1-1)]';
mul_contr = abs(i_matrix - j_matrix).^2;
mul_dissi = abs(i_matrix - j_matrix);
%div_homop = ( 1 + mul_contr);
% used from the above two formulae
%div_homom = ( 1 + mul_dissi);
for k = 1:size_glcmm_3 % number glcmm
    out.contr(k) = sum(sum(mul_contr.*glcm(:,:,k)));
    out.dissi(k) = sum(sum(mul_dissi.*glcm(:,:,k)));
    out.energ(k) = sum(sum(glcm(:,:,k).^2));
    out.entro(k) = - sum(sum((glcm(:,:,k).*log(glcm(:,:,k) +
eps))));
    out.homom(k) = sum(sum((glcm(:,:,k)./( 1 + mul_dissi))));
    out.homop(k) = sum(sum((glcm(:,:,k)./( 1 + mul_contr))));
    % [1] explains sum of squares variance with a mean value;
    % the exact definition for mean has not been provided in
    % the reference: I use the mean of the entire normalized glcm
    out.sosvh(k) = sum(sum(glcm(:,:,k).*((i_matrix -
glcm_mean(k)).^2)));
    out.indnc(k) = sum(sum(glcm(:,:,k)./( 1 +
(mul_dissi./size_glcmm_1) )));

```

```

    out.idmnc(k) = sum(sum(glcmm(:, :, k) ./ ( 1 +
(mul_contr. / (size_glcmm_1^2)))));
    out.maxpr(k) = max(max(glcmm(:, :, k)));
    u_x(k) = sum(sum(i_matrix.*glcmm(:, :, k)));
    u_y(k) = sum(sum(j_matrix.*glcmm(:, :, k)));
    % using http://www.fp.ucalgary.ca/mhallbey/glcmm\_variance.htm
for s_x
    % s_y : This solves the difference in value of correlation and
might be
    % the right value of standard deviations required
    % According to this website there is a typo in [2] which
provides
    % values of variance instead of the standard deviation hence a
square
    % root is required as done below:
    s_x(k) = (sum(sum( ((i_matrix - u_x(k)).^2).*glcmm(:, :, k)
)))^0.5;
    s_y(k) = (sum(sum( ((j_matrix - u_y(k)).^2).*glcmm(:, :, k)
)))^0.5;
    corpk(k) = sum(sum((i_matrix.*j_matrix.*glcmm(:, :, k))));
    corm(k) = sum(sum(((i_matrix - u_x(k)).*(j_matrix -
u_y(k)).*glcmm(:, :, k))));
    out.autoc(k) = corpk(k);
    out.corrp(k) = (corpk(k) - u_x(k)*u_y(k))/(s_x(k)*s_y(k));
    out.corm(k) = corm(k) / (s_x(k)*s_y(k));
    out.cprom(k) = sum(sum(((i_matrix + j_matrix - u_x(k) -
u_y(k)).^4).*...
glcmm(:, :, k))));
    out.cshad(k) = sum(sum(((i_matrix + j_matrix - u_x(k) -
u_y(k)).^3).*...
glcmm(:, :, k))));
    out.savgh(k) = sum((xplusy_index + 1).*p_xplusy(:, k));
    % the summation for savgh is for i from 2 to 2*Ng hence (i+1)
    out.senth(k) = - sum(p_xplusy(:, k).*...
log(p_xplusy(:, k) + eps));
    % compute sum variance with the help of sum entropy
    out.svarh(k) = sum(((xplusy_index + 1) -
out.senth(k)).^2).*...

```



```

        p_xplusy(:,k));
    % the summation for savgh is for i from 2 to 2*Ng hence (i+1)
    % compute difference variance, difference entropy,
    % out.dvarh2(k) = var(p_xminusy(:,k));
    % but using the formula in
http://murphy-lab.web.cmu.edu/publications/boland/boland\_node
26.html
    % we have for dvarh
    out.denth(k) = - sum((p_xminusy(:,k)).*...
        log(p_xminusy(:,k) + eps));
    out.dvarh(k) = sum((xminusy_index.^2).*p_xminusy(:,k));
    % compute information measure of correlation(1,2) [1]
    hxy(k) = out.entro(k);
    glcmk = glcm(:, :, k)';
    glcmkv = glcmk(:);
    hxy1(k) = - sum(glcmkv.*log(p_x(i_index,k).*p_y(j_index,k) +
eps)));
    hxy2(k) = - sum(p_x(i_index,k).*p_y(j_index,k).*...
        log(p_x(i_index,k).*p_y(j_index,k) + eps));
    hx(k) = - sum(p_x(:,k).*log(p_x(:,k) + eps));
    hy(k) = - sum(p_y(:,k).*log(p_y(:,k) + eps));
    out.inflh(k) = ( hxy(k) - hxy1(k) ) / ( max([hx(k),hy(k)]) );
    out.inf2h(k) = ( 1 - exp( -2*( hxy2(k) - hxy(k) ) ) )^0.5;
    % eig_Q(k,:) = eig(Q(:, :, k));
    % sort_eig(k,:) = sort(eig_Q(k,:), 'descend');
    % out.mxcch(k) = sort_eig(k,2)^0.5;
    % The maximal correlation coefficient was not calculated due
to
    % computational instability
    % http://murphy-lab.web.cmu.edu/publications/boland/boland\_node
26.html
end

% GLCM Features (Soh, 1999; Haralick, 1973; Clausi 2002)
% f1. Uniformity / Energy / Angular Second Moment (done)
% f2. Entropy (done)
% f3. Dissimilarity (done)
% f4. Contrast / Inertia (done)
% f5. Inverse difference

```

```
% f6. correlation
% f7. Homogeneity / Inverse difference moment
% f8. Autocorrelation
% f9. Cluster Shade
% f10. Cluster Prominence
% f11. Maximum probability
% f12. Sum of Squares
% f13. Sum Average
% f14. Sum Variance
% f15. Sum Entropy
% f16. Difference variance
% f17. Difference entropy
% f18. Information measures of correlation (1)
% f19. Information measures of correlation (2)
% f20. Maximal correlation coefficient
% f21. Inverse difference normalized (INN)
% f22. Inverse difference moment normalized (IDN)
```

Lampiran 5. Hasil Ekstraksi Citra

| <i>File</i> | <i>Contrast</i> | <i>Corelation</i> | <i>Dissimilarity</i> | <i>Energy</i> | <i>Entropy</i> | <i>Homogeneity</i> | <i>Max.Probability</i> | <i>Sum of Squares</i> | <i>Sum Average</i> | <i>Sum Variance</i> | <i>Sum Entropy</i> | <i>Diff. Variance</i> | <i>Diff. Entropy</i> | <i>IDM</i> |
|-------------|-----------------|-------------------|----------------------|---------------|----------------|--------------------|------------------------|-----------------------|--------------------|---------------------|--------------------|-----------------------|----------------------|------------|
| 2731 | 0.3085 | 0.9788 | 0.1925 | 0.2929 | 1.9472 | 0.9181 | 0.5050 | 37.666 | 11.055 | 115.35 | 1.7534 | 0.3085 | 0.5224 | 0.9955 |
| 2765 | 0.2693 | 0.9820 | 0.1553 | 0.3086 | 1.7751 | 0.9370 | 0.4949 | 36.406 | 10.783 | 113.81 | 1.6148 | 0.2693 | 0.4445 | 0.9961 |
| 2801 | 0.3375 | 0.9765 | 0.2020 | 0.2314 | 2.0775 | 0.9166 | 0.4038 | 31.892 | 9.9693 | 94.145 | 1.8652 | 0.3375 | 0.5385 | 0.9951 |
| 2810 | 0.4212 | 0.9734 | 0.2672 | 0.1909 | 2.3197 | 0.8867 | 0.3831 | 30.753 | 9.5833 | 88.172 | 2.0453 | 0.4212 | 0.6519 | 0.9939 |
| 2811 | 0.2685 | 0.9836 | 0.1610 | 0.3096 | 1.7994 | 0.9328 | 0.5217 | 37.080 | 10.772 | 116.00 | 1.6442 | 0.2685 | 0.4591 | 0.9961 |
| 2815 | 0.2781 | 0.9793 | 0.1672 | 0.2947 | 1.8931 | 0.9298 | 0.5075 | 38.216 | 11.251 | 117.50 | 1.7217 | 0.2781 | 0.4727 | 0.9960 |
| 2820 | 0.4260 | 0.9711 | 0.2366 | 0.2224 | 2.1467 | 0.9045 | 0.4170 | 32.278 | 10.009 | 95.044 | 1.8904 | 0.4260 | 0.5963 | 0.9940 |
| 2823 | 0.2314 | 0.9823 | 0.1378 | 0.3417 | 1.6632 | 0.9435 | 0.5230 | 38.549 | 11.343 | 122.56 | 1.5165 | 0.2314 | 0.4091 | 0.9966 |
| 2827 | 0.3314 | 0.9789 | 0.2243 | 0.1994 | 2.1811 | 0.9024 | 0.3776 | 29.572 | 9.3450 | 85.782 | 1.9578 | 0.3314 | 0.5815 | 0.9955 |
| 2829 | 0.2885 | 0.9800 | 0.1633 | 0.3420 | 1.7182 | 0.9338 | 0.5373 | 38.977 | 11.302 | 123.57 | 1.5557 | 0.2885 | 0.4604 | 0.9959 |
| 2834 | 0.3609 | 0.9762 | 0.2079 | 0.2682 | 1.9290 | 0.9153 | 0.4551 | 33.900 | 10.290 | 103.50 | 1.7163 | 0.3609 | 0.5475 | 0.9948 |
| 2835 | 0.2359 | 0.9827 | 0.1408 | 0.3425 | 1.6960 | 0.9421 | 0.5291 | 39.065 | 11.386 | 123.74 | 1.5547 | 0.2359 | 0.4155 | 0.9966 |
| 2839 | 0.2627 | 0.9824 | 0.1607 | 0.3059 | 1.8140 | 0.9326 | 0.5148 | 37.461 | 10.980 | 116.61 | 1.6577 | 0.2627 | 0.4588 | 0.9962 |
| 2841 | 0.2947 | 0.9805 | 0.1670 | 0.3395 | 1.7316 | 0.9326 | 0.5436 | 38.865 | 11.221 | 123.37 | 1.5554 | 0.2947 | 0.4679 | 0.9958 |
| 2842 | 0.3538 | 0.9714 | 0.2063 | 0.2712 | 1.9817 | 0.9153 | 0.4753 | 37.163 | 11.162 | 112.65 | 1.7678 | 0.3539 | 0.5457 | 0.9949 |
| 2844 | 0.3256 | 0.9798 | 0.2159 | 0.2042 | 2.1688 | 0.9066 | 0.3861 | 30.013 | 9.3942 | 87.409 | 1.9546 | 0.3256 | 0.5661 | 0.9952 |
| 2845 | 0.2083 | 0.9851 | 0.1393 | 0.2870 | 1.8860 | 0.9397 | 0.4933 | 37.23 | 11.038 | 114.21 | 1.7418 | 0.2083 | 0.4194 | 0.9969 |
| 2847 | 0.3139 | 0.9784 | 0.1903 | 0.2657 | 1.9548 | 0.9212 | 0.4371 | 33.628 | 10.298 | 101.83 | 1.7514 | 0.3139 | 0.5175 | 0.9954 |
| 2852 | 0.2704 | 0.9815 | 0.1648 | 0.2995 | 1.8702 | 0.9313 | 0.5075 | 37.476 | 11.014 | 115.61 | 1.7076 | 0.2704 | 0.4670 | 0.9961 |
| 2854 | 0.2913 | 0.9804 | 0.1733 | 0.2974 | 1.8097 | 0.9282 | 0.4758 | 35.168 | 10.557 | 109.25 | 1.6314 | 0.2913 | 0.4839 | 0.9958 |

| | | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2861 | 0.3103 | 0.9775 | 0.1609 | 0.3017 | 1.8471 | 0.9378 | 0.4930 | 37.404 | 11.075 | 115.74 | 1.6726 | 0.3103 | 0.4470 | 0.9956 |
| 2871 | 0.2993 | 0.9792 | 0.1798 | 0.2926 | 1.9510 | 0.9252 | 0.5076 | 38.108 | 11.145 | 116.61 | 1.7644 | 0.2993 | 0.4975 | 0.9957 |
| 2921 | 0.3572 | 0.9766 | 0.2068 | 0.2671 | 2.0088 | 0.9156 | 0.4775 | 35.673 | 10.616 | 108.17 | 1.7913 | 0.3572 | 0.5456 | 0.9949 |
| 2931 | 0.4289 | 0.9690 | 0.2393 | 0.2190 | 2.1635 | 0.9020 | 0.4092 | 32.654 | 10.174 | 95.427 | 1.9206 | 0.4289 | 0.5983 | 0.9940 |
| 2939 | 0.2450 | 0.9838 | 0.1508 | 0.2970 | 1.7950 | 0.9371 | 0.4745 | 35.240 | 10.548 | 109.32 | 1.6478 | 0.2450 | 0.4389 | 0.9964 |
| 3035 | 0.3388 | 0.9637 | 0.2037 | 0.3000 | 1.9980 | 0.9150 | 0.5174 | 43.755 | 12.535 | 133.85 | 1.7870 | 0.3388 | 0.5422 | 0.9951 |
| 3119 | 0.2844 | 0.9759 | 0.1579 | 0.3253 | 1.7866 | 0.9369 | 0.5216 | 39.755 | 11.664 | 124.57 | 1.6060 | 0.2844 | 0.4477 | 0.9959 |
| 3125 | 0.3113 | 0.9767 | 0.1672 | 0.2951 | 1.8238 | 0.9345 | 0.4798 | 36.290 | 10.909 | 112.42 | 1.6403 | 0.3113 | 0.4626 | 0.9956 |
| 3161 | 0.3303 | 0.9729 | 0.2025 | 0.2918 | 1.9321 | 0.9147 | 0.5079 | 38.862 | 11.479 | 119.17 | 1.7263 | 0.3308 | 0.5406 | 0.9952 |
| 3218 | 0.4026 | 0.9646 | 0.2365 | 0.2716 | 2.0137 | 0.9018 | 0.4816 | 38.182 | 11.430 | 115.90 | 1.7600 | 0.4026 | 0.5987 | 0.9943 |
| 3234 | 0.2707 | 0.9815 | 0.1603 | 0.2845 | 1.8254 | 0.9335 | 0.4579 | 34.449 | 10.448 | 106.17 | 1.6637 | 0.2707 | 0.4572 | 0.9961 |
| 3249 | 0.3769 | 0.9735 | 0.2227 | 0.2438 | 2.0098 | 0.9079 | 0.4001 | 31.343 | 9.8751 | 93.442 | 1.7913 | 0.3767 | 0.5744 | 0.9946 |
| 3296 | 0.2687 | 0.9810 | 0.1607 | 0.3213 | 1.7994 | 0.9334 | 0.5320 | 38.742 | 11.283 | 121.25 | 1.6312 | 0.2687 | 0.4578 | 0.9961 |
| 3302 | 0.2772 | 0.9781 | 0.1590 | 0.3495 | 1.7290 | 0.9353 | 0.5531 | 40.751 | 11.763 | 129.14 | 1.5622 | 0.2772 | 0.4520 | 0.9960 |
| 3303 | 0.2925 | 0.9791 | 0.1671 | 0.3184 | 1.7505 | 0.9319 | 0.5033 | 36.982 | 10.976 | 116.15 | 1.5786 | 0.2925 | 0.4693 | 0.9958 |
| 3321 | 0.4084 | 0.9695 | 0.2140 | 0.2937 | 1.8961 | 0.9160 | 0.4756 | 36.096 | 10.872 | 111.20 | 1.6658 | 0.4084 | 0.5526 | 0.9943 |
| 3344 | 0.2968 | 0.9780 | 0.1849 | 0.2926 | 1.9738 | 0.9219 | 0.5077 | 38.625 | 11.320 | 117.80 | 1.7787 | 0.2968 | 0.5086 | 0.9957 |
| 3354 | 0.2677 | 0.9815 | 0.1495 | 0.3299 | 1.6955 | 0.9403 | 0.5047 | 37.241 | 10.984 | 117.77 | 1.5480 | 0.2677 | 0.4296 | 0.9962 |
| 3425 | 0.3742 | 0.9743 | 0.2067 | 0.2994 | 1.8450 | 0.9174 | 0.4793 | 35.646 | 10.682 | 110.63 | 1.6345 | 0.3742 | 0.5423 | 0.9947 |
| 3468 | 0.2535 | 0.9828 | 0.1372 | 0.3117 | 1.7115 | 0.9447 | 0.4661 | 34.946 | 10.531 | 109.59 | 1.5692 | 0.2535 | 0.4036 | 0.9965 |
| 3469 | 0.3360 | 0.9726 | 0.1840 | 0.3107 | 1.8401 | 0.9275 | 0.5155 | 39.047 | 11.504 | 121.54 | 1.6388 | 0.3360 | 0.4970 | 0.9952 |
| 3471 | 0.4433 | 0.9665 | 0.2219 | 0.2475 | 2.0719 | 0.9155 | 0.4463 | 35.256 | 10.732 | 105.40 | 1.8252 | 0.4433 | 0.5611 | 0.9938 |
| 3482 | 0.2340 | 0.9830 | 0.1408 | 0.3465 | 1.6595 | 0.9416 | 0.5267 | 38.567 | 11.287 | 122.83 | 1.5147 | 0.2340 | 0.4167 | 0.9966 |

| | | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3507 | 0.3037 | 0.9807 | 0.1720 | 0.2928 | 1.8370 | 0.9299 | 0.4886 | 35.580 | 10.556 | 110.29 | 1.6651 | 0.3037 | 0.4786 | 0.9957 |
| 3536 | 0.2944 | 0.9815 | 0.1809 | 0.2904 | 1.8554 | 0.9240 | 0.4884 | 35.537 | 10.529 | 110.00 | 1.6773 | 0.2944 | 0.5001 | 0.9957 |
| 3537 | 0.2616 | 0.9820 | 0.1596 | 0.3230 | 1.7887 | 0.9329 | 0.5310 | 38.521 | 11.206 | 120.72 | 1.6262 | 0.2616 | 0.4577 | 0.9962 |
| 3572 | 0.3376 | 0.9746 | 0.2169 | 0.2669 | 2.0990 | 0.9078 | 0.4875 | 38.247 | 11.273 | 114.59 | 1.8751 | 0.3376 | 0.5678 | 0.9950 |
| 3590 | 0.3124 | 0.9765 | 0.1754 | 0.3077 | 1.7950 | 0.9295 | 0.5065 | 37.706 | 11.173 | 117.69 | 1.6169 | 0.3124 | 0.4836 | 0.9955 |
| 3606 | 0.3882 | 0.9677 | 0.2158 | 0.2237 | 2.1880 | 0.9131 | 0.4314 | 35.911 | 10.966 | 105.12 | 1.9420 | 0.3882 | 0.5604 | 0.9945 |
| 3617 | 0.3347 | 0.9720 | 0.1794 | 0.3404 | 1.7300 | 0.9297 | 0.5344 | 39.933 | 11.684 | 126.54 | 1.5382 | 0.3347 | 0.4869 | 0.9952 |
| 3680 | 0.3879 | 0.9743 | 0.2308 | 0.2260 | 2.1581 | 0.9041 | 0.4312 | 33.220 | 10.161 | 97.916 | 1.9126 | 0.3879 | 0.5897 | 0.9944 |
| 3688 | 0.3389 | 0.9763 | 0.1845 | 0.2688 | 1.9124 | 0.9258 | 0.4494 | 34.112 | 10.415 | 103.89 | 1.7197 | 0.3389 | 0.5004 | 0.9952 |
| 3691 | 0.2834 | 0.9798 | 0.1631 | 0.3165 | 1.7941 | 0.9337 | 0.5102 | 37.796 | 11.121 | 118.01 | 1.6289 | 0.2834 | 0.4603 | 0.9959 |
| 3724 | 0.3263 | 0.9758 | 0.1754 | 0.3026 | 1.8707 | 0.9306 | 0.5013 | 37.948 | 11.201 | 117.27 | 1.6839 | 0.3263 | 0.4802 | 0.9954 |
| 3736 | 0.2773 | 0.9800 | 0.1590 | 0.3191 | 1.7687 | 0.9354 | 0.5015 | 37.233 | 11.037 | 116.55 | 1.6014 | 0.2773 | 0.4525 | 0.9960 |
| 3777 | 0.2984 | 0.9781 | 0.1717 | 0.2599 | 1.9717 | 0.9296 | 0.4599 | 35.533 | 10.743 | 107.28 | 1.7880 | 0.2984 | 0.4790 | 0.9959 |
| 3801 | 0.3266 | 0.9772 | 0.1732 | 0.2803 | 1.8634 | 0.9320 | 0.4572 | 34.594 | 10.504 | 106.24 | 1.6792 | 0.3266 | 0.4749 | 0.9954 |

| <i>File</i> | <i>Contrast</i> | <i>Corelation</i> | <i>Dissimilarity</i> | <i>Energy</i> | <i>Entropy</i> | <i>Homo geneity</i> | <i>Max.Pro bability</i> | <i>Sum of Squares</i> | <i>Sum Average</i> | <i>Sum Variance</i> | <i>Sum Entropy</i> | <i>Diff. Variance</i> | <i>Diff. Entropy</i> | <i>IDM</i> |
|-------------|-----------------|-------------------|----------------------|---------------|----------------|---------------------|-------------------------|-----------------------|--------------------|---------------------|--------------------|-----------------------|----------------------|------------|
| 2888 | 0.3209 | 0.9786 | 0.1849 | 0.3001 | 1.7759 | 0.9246 | 0.4625 | 34.309 | 10.380 | 107.05 | 1.5918 | 0.3209 | 0.5042 | 0.9954 |
| 2993 | 0.2723 | 0.9815 | 0.1527 | 0.3209 | 1.6681 | 0.9383 | 0.4648 | 34.512 | 10.448 | 109.16 | 1.5094 | 0.2723 | 0.4382 | 0.9961 |
| 2994 | 0.3135 | 0.9794 | 0.1791 | 0.3051 | 1.7902 | 0.9282 | 0.4773 | 35.714 | 10.632 | 111.53 | 1.6113 | 0.3135 | 0.4902 | 0.9955 |
| 3001 | 0.2476 | 0.9831 | 0.1342 | 0.3571 | 1.5521 | 0.9471 | 0.5174 | 37.528 | 11.019 | 121.27 | 1.4197 | 0.2476 | 0.3945 | 0.9965 |
| 3007 | 0.3929 | 0.9713 | 0.2172 | 0.3239 | 1.8403 | 0.9138 | 0.5190 | 38.532 | 11.286 | 120.66 | 1.6116 | 0.3929 | 0.5606 | 0.9944 |
| 3081 | 0.4035 | 0.9715 | 0.2098 | 0.2978 | 1.8355 | 0.9181 | 0.4623 | 34.961 | 10.590 | 108.27 | 1.6274 | 0.4035 | 0.5427 | 0.9944 |

| | | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3082 | 0.3238 | 0.9797 | 0.1912 | 0.2916 | 1.7892 | 0.9196 | 0.4858 | 34.967 | 10.421 | 109.22 | 1.6103 | 0.3238 | 0.5172 | 0.9954 |
| 3083 | 0.2984 | 0.9803 | 0.1617 | 0.3322 | 1.6892 | 0.9354 | 0.5157 | 37.273 | 10.928 | 118.47 | 1.5245 | 0.2984 | 0.4549 | 0.9958 |
| 3096 | 0.3892 | 0.9735 | 0.2109 | 0.3082 | 1.8265 | 0.9167 | 0.4934 | 36.509 | 10.828 | 113.89 | 1.6184 | 0.3892 | 0.5478 | 0.9945 |
| 3100 | 0.2884 | 0.9793 | 0.1554 | 0.3768 | 1.5742 | 0.9394 | 0.5586 | 39.914 | 11.506 | 129.63 | 1.4094 | 0.2884 | 0.4368 | 0.9959 |
| 3106 | 0.2174 | 0.9851 | 0.1189 | 0.3820 | 1.4752 | 0.9528 | 0.5538 | 39.330 | 11.346 | 128.81 | 1.3594 | 0.2174 | 0.3608 | 0.9969 |
| 3126 | 0.3272 | 0.9773 | 0.1669 | 0.3573 | 1.6156 | 0.9358 | 0.5340 | 38.587 | 11.232 | 124.24 | 1.4504 | 0.3272 | 0.4581 | 0.9954 |
| 3127 | 0.2725 | 0.9816 | 0.1507 | 0.3652 | 1.5725 | 0.9397 | 0.5479 | 38.965 | 11.264 | 126.19 | 1.4260 | 0.2725 | 0.4325 | 0.9961 |
| 3139 | 0.3322 | 0.9743 | 0.1998 | 0.3002 | 1.8221 | 0.9162 | 0.5059 | 37.898 | 11.244 | 117.98 | 1.6291 | 0.3322 | 0.5340 | 0.9952 |
| 3140 | 0.3487 | 0.9766 | 0.1909 | 0.2840 | 1.8040 | 0.9236 | 0.4238 | 31.940 | 9.9239 | 98.750 | 1.6050 | 0.3487 | 0.5133 | 0.9951 |
| 3144 | 0.3492 | 0.9750 | 0.1939 | 0.3021 | 1.8267 | 0.9223 | 0.4710 | 35.649 | 10.733 | 110.62 | 1.6278 | 0.3492 | 0.5184 | 0.9950 |
| 3190 | 0.3991 | 0.9729 | 0.2146 | 0.2952 | 1.8728 | 0.9154 | 0.4747 | 35.421 | 10.623 | 109.62 | 1.6494 | 0.3991 | 0.5545 | 0.9944 |
| 3196 | 0.3470 | 0.9760 | 0.1888 | 0.333 | 1.7651 | 0.9249 | 0.5233 | 38.521 | 11.214 | 121.65 | 1.5720 | 0.3470 | 0.5078 | 0.9951 |
| 3231 | 0.3491 | 0.9756 | 0.1992 | 0.2936 | 1.8580 | 0.9192 | 0.4562 | 34.748 | 10.531 | 107.19 | 1.6539 | 0.3491 | 0.5313 | 0.9950 |
| 3254 | 0.3049 | 0.9807 | 0.1809 | 0.2900 | 1.8279 | 0.9251 | 0.4859 | 35.686 | 10.567 | 110.89 | 1.6530 | 0.3049 | 0.4971 | 0.9956 |
| 3260 | 0.3411 | 0.9777 | 0.1782 | 0.3258 | 1.6842 | 0.9307 | 0.5000 | 36.056 | 10.689 | 114.70 | 1.5015 | 0.3411 | 0.4834 | 0.9952 |
| 3282 | 0.2485 | 0.9826 | 0.1354 | 0.3684 | 1.5152 | 0.9465 | 0.5239 | 37.925 | 11.122 | 123.31 | 1.3820 | 0.2485 | 0.3973 | 0.9964 |
| 3321 | 0.3192 | 0.9787 | 0.1841 | 0.3005 | 1.7727 | 0.9249 | 0.4619 | 34.283 | 10.376 | 106.97 | 1.5909 | 0.3192 | 0.5025 | 0.9954 |
| 3397 | 0.4279 | 0.9709 | 0.2322 | 0.2593 | 1.9656 | 0.9082 | 0.4114 | 31.718 | 9.9034 | 95.902 | 1.7232 | 0.4279 | 0.5870 | 0.9939 |
| 3398 | 0.3161 | 0.9781 | 0.1660 | 0.3300 | 1.6818 | 0.9348 | 0.4891 | 36.060 | 10.768 | 114.33 | 1.5111 | 0.3161 | 0.4604 | 0.9956 |
| 3411 | 0.2749 | 0.9809 | 0.1651 | 0.3191 | 1.7241 | 0.9315 | 0.4907 | 36.320 | 10.819 | 114.35 | 1.5602 | 0.2749 | 0.4673 | 0.9960 |
| 3414 | 0.3302 | 0.9782 | 0.1810 | 0.3304 | 1.7323 | 0.9282 | 0.5182 | 37.681 | 11.005 | 119.37 | 1.5495 | 0.3302 | 0.4923 | 0.9953 |
| 3418 | 0.3593 | 0.9747 | 0.1822 | 0.3286 | 1.6973 | 0.9304 | 0.4785 | 35.680 | 10.722 | 112.92 | 1.5103 | 0.3593 | 0.4873 | 0.9950 |
| 3434 | 0.3096 | 0.9783 | 0.1739 | 0.3530 | 1.6642 | 0.9300 | 0.5412 | 38.966 | 11.313 | 124.67 | 1.4946 | 0.3096 | 0.4804 | 0.9956 |

| | | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3455 | 0.2978 | 0.9797 | 0.1602 | 0.3481 | 1.6172 | 0.9363 | 0.5200 | 37.604 | 11.032 | 120.71 | 1.4603 | 0.2978 | 0.4511 | 0.9958 |
| 3467 | 0.4345 | 0.9684 | 0.2375 | 0.2689 | 1.9650 | 0.9057 | 0.4329 | 33.559 | 10.361 | 101.84 | 1.7153 | 0.4345 | 0.5962 | 0.9938 |
| 3473 | 0.3315 | 0.9761 | 0.1828 | 0.3084 | 1.8111 | 0.9270 | 0.4779 | 36.687 | 10.934 | 114.21 | 1.6240 | 0.3315 | 0.4965 | 0.9953 |
| 3475 | 0.2799 | 0.9804 | 0.1526 | 0.3407 | 1.5975 | 0.9391 | 0.4816 | 35.459 | 10.672 | 113.38 | 1.4494 | 0.2799 | 0.4351 | 0.9960 |
| 3477 | 0.3178 | 0.9803 | 0.1716 | 0.3012 | 1.7695 | 0.9315 | 0.4823 | 35.015 | 10.410 | 109.70 | 1.5962 | 0.3178 | 0.4746 | 0.9955 |
| 3484 | 0.3273 | 0.9763 | 0.1893 | 0.3402 | 1.7174 | 0.9231 | 0.5331 | 38.795 | 11.322 | 123.28 | 1.5284 | 0.3273 | 0.5125 | 0.9953 |
| 3547 | 0.3791 | 0.9761 | 0.2068 | 0.2650 | 1.8857 | 0.9165 | 0.4388 | 32.602 | 9.9650 | 99.850 | 1.6885 | 0.3791 | 0.5413 | 0.9947 |
| 3552 | 0.3568 | 0.9746 | 0.1916 | 0.3287 | 1.7866 | 0.9237 | 0.5303 | 38.910 | 11.323 | 122.46 | 1.5921 | 0.3568 | 0.5125 | 0.9954 |
| 3553 | 0.3197 | 0.9793 | 0.1845 | 0.2983 | 1.7690 | 0.9246 | 0.4641 | 34.141 | 10.307 | 106.67 | 1.5880 | 0.3197 | 0.5038 | 0.9954 |
| 3554 | 0.2463 | 0.9830 | 0.1351 | 0.3616 | 1.4699 | 0.9460 | 0.5022 | 36.219 | 10.789 | 118.13 | 1.3427 | 0.2463 | 0.3988 | 0.9965 |
| 3565 | 0.2989 | 0.9803 | 0.1544 | 0.3342 | 1.6552 | 0.9404 | 0.5021 | 36.728 | 10.826 | 117.02 | 1.5020 | 0.2989 | 0.4324 | 0.9958 |
| 3569 | 0.3456 | 0.9749 | 0.1971 | 0.3116 | 1.8334 | 0.9193 | 0.5187 | 38.578 | 11.289 | 120.28 | 1.6426 | 0.3456 | 0.5269 | 0.9951 |
| 3576 | 0.3382 | 0.9776 | 0.1861 | 0.3358 | 1.7079 | 0.9265 | 0.5258 | 37.754 | 11.024 | 120.19 | 1.5188 | 0.3382 | 0.5017 | 0.9952 |
| 3605 | 0.3000 | 0.9808 | 0.1746 | 0.3312 | 1.7074 | 0.9280 | 0.5375 | 38.168 | 11.043 | 121.33 | 1.5445 | 0.3000 | 0.4843 | 0.9957 |
| 3612 | 0.2925 | 0.9811 | 0.1640 | 0.3210 | 1.7004 | 0.9336 | 0.5104 | 36.784 | 10.803 | 116.53 | 1.5442 | 0.2925 | 0.4608 | 0.9958 |
| 3625 | 0.3116 | 0.9788 | 0.1667 | 0.3463 | 1.6429 | 0.9344 | 0.5213 | 37.856 | 11.071 | 121.19 | 1.4815 | 0.3116 | 0.4622 | 0.9956 |
| 3630 | 0.3034 | 0.9784 | 0.1723 | 0.3192 | 1.7467 | 0.9312 | 0.4738 | 35.893 | 10.775 | 112.65 | 1.5653 | 0.3034 | 0.4760 | 0.9956 |
| 3644 | 0.3031 | 0.9759 | 0.1737 | 0.3654 | 1.6706 | 0.9293 | 0.5792 | 42.058 | 11.988 | 134.89 | 1.5029 | 0.3031 | 0.4817 | 0.9957 |
| 3653 | 0.3655 | 0.9750 | 0.1944 | 0.2843 | 1.8328 | 0.9233 | 0.4185 | 32.031 | 9.9710 | 98.514 | 1.6310 | 0.3655 | 0.5169 | 0.9949 |
| 3681 | 0.3045 | 0.9808 | 0.1797 | 0.2840 | 1.8241 | 0.9253 | 0.4791 | 34.926 | 10.416 | 108.34 | 1.6527 | 0.3045 | 0.4959 | 0.9956 |
| 3699 | 0.4060 | 0.9711 | 0.2383 | 0.2358 | 2.0535 | 0.9013 | 0.4239 | 33.044 | 10.230 | 98.625 | 1.8117 | 0.4060 | 0.6018 | 0.9942 |
| 3720 | 0.2977 | 0.9783 | 0.1735 | 0.3526 | 1.6501 | 0.9293 | 0.5308 | 38.611 | 11.296 | 123.80 | 1.4699 | 0.2977 | 0.4827 | 0.9957 |
| 3751 | 0.3843 | 0.9731 | 0.2069 | 0.2814 | 1.8871 | 0.9182 | 0.4233 | 32.886 | 10.176 | 100.57 | 1.6711 | 0.3843 | 0.5413 | 0.9946 |

| | | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3757 | 0.3408 | 0.9762 | 0.2131 | 0.2333 | 1.9661 | 0.9088 | 0.4114 | 31.740 | 9.9431 | 95.202 | 1.7684 | 0.3408 | 0.558 | 0.9951 |
| 3810 | 0.3009 | 0.9801 | 0.1793 | 0.3108 | 1.7704 | 0.9250 | 0.5060 | 36.620 | 10.808 | 114.83 | 1.5997 | 0.3009 | 0.4954 | 0.9957 |
| 3823 | 0.3477 | 0.9757 | 0.1956 | 0.2988 | 1.8295 | 0.9217 | 0.4588 | 34.887 | 10.559 | 108.21 | 1.6232 | 0.3477 | 0.5225 | 0.9950 |
| 3828 | 0.3914 | 0.9727 | 0.2159 | 0.2888 | 1.8438 | 0.9136 | 0.4382 | 33.313 | 10.254 | 102.77 | 1.6274 | 0.3914 | 0.5592 | 0.9944 |
| 3834 | 0.2881 | 0.9793 | 0.1541 | 0.3552 | 1.6247 | 0.9395 | 0.5238 | 38.726 | 11.300 | 124.29 | 1.4684 | 0.2881 | 0.4362 | 0.9959 |

Lampiran 6. Target Klasifikasi Data

| Nama | Diagnosa | Target |
|----------|----------|--------|
| 2731.jpg | Kanker | 1 |
| 2765.jpg | Kanker | 1 |
| 2801.jpg | Kanker | 1 |
| 2810.jpg | Kanker | 1 |
| 2811.jpg | Kanker | 1 |
| 2815.jpg | Kanker | 1 |
| 2820.jpg | Kanker | 1 |
| 2823.jpg | Kanker | 1 |
| 2827.jpg | Kanker | 1 |
| 2829.jpg | Kanker | 1 |
| 2834.jpg | Kanker | 1 |
| 2835.jpg | Kanker | 1 |
| 2839.jpg | Kanker | 1 |
| 2841.jpg | Kanker | 1 |
| 2842.jpg | Kanker | 1 |
| 2844.jpg | Kanker | 1 |
| 2845.jpg | Kanker | 1 |
| 2847.jpg | Kanker | 1 |
| 2852.jpg | Kanker | 1 |
| 2854.jpg | Kanker | 1 |
| 2861.jpg | Kanker | 1 |
| 2871.jpg | Kanker | 1 |
| 2921.jpg | Kanker | 1 |
| 2931.jpg | Kanker | 1 |
| 2939.jpg | Kanker | 1 |
| 3035.jpg | Kanker | 1 |
| 3119.jpg | Kanker | 1 |
| 3125.jpg | Kanker | 1 |
| 3161.jpg | Kanker | 1 |
| 3218.jpg | Kanker | 1 |
| 3234.jpg | Kanker | 1 |
| 3249.jpg | Kanker | 1 |
| 3296.jpg | Kanker | 1 |
| 3302.jpg | Kanker | 1 |
| 3303.jpg | Kanker | 1 |
| 3321.jpg | Kanker | 1 |
| 3344.jpg | Kanker | 1 |

| Nama | Diagnosa | Target |
|----------|----------|--------|
| 2888.jpg | Normal | 0 |
| 2993.jpg | Normal | 0 |
| 2994.jpg | Normal | 0 |
| 3001.jpg | Normal | 0 |
| 3007.jpg | Normal | 0 |
| 3081.jpg | Normal | 0 |
| 3082.jpg | Normal | 0 |
| 3083.jpg | Normal | 0 |
| 3096.jpg | Normal | 0 |
| 3100.jpg | Normal | 0 |
| 3106.jpg | Normal | 0 |
| 3126.jpg | Normal | 0 |
| 3127.jpg | Normal | 0 |
| 3139.jpg | Normal | 0 |
| 3140.jpg | Normal | 0 |
| 3144.jpg | Normal | 0 |
| 3190.jpg | Normal | 0 |
| 3196.jpg | Normal | 0 |
| 3231.jpg | Normal | 0 |
| 3254.jpg | Normal | 0 |
| 3260.jpg | Normal | 0 |
| 3282.jpg | Normal | 0 |
| 3321.jpg | Normal | 0 |
| 3397.jpg | Normal | 0 |
| 3398.jpg | Normal | 0 |
| 3411.jpg | Normal | 0 |
| 3414.jpg | Normal | 0 |
| 3418.jpg | Normal | 0 |
| 3434.jpg | Normal | 0 |
| 3455.jpg | Normal | 0 |
| 3467.jpg | Normal | 0 |
| 3473.jpg | Normal | 0 |
| 3475.jpg | Normal | 0 |
| 3477.jpg | Normal | 0 |
| 3484.jpg | Normal | 0 |
| 3547.jpg | Normal | 0 |
| 3552.jpg | Normal | 0 |

| Nama | Diagnosa | Target |
|----------|----------|--------|
| 3354.jpg | Kanker | 1 |
| 3425.jpg | Kanker | 1 |
| 3468.jpg | Kanker | 1 |
| 3469.jpg | Kanker | 1 |
| 3471.jpg | Kanker | 1 |
| 3482.jpg | Kanker | 1 |
| 3507.jpg | Kanker | 1 |
| 3536.jpg | Kanker | 1 |
| 3537.jpg | Kanker | 1 |
| 3572.jpg | Kanker | 1 |
| 3590.jpg | Kanker | 1 |
| 3606.jpg | Kanker | 1 |
| 3617.jpg | Kanker | 1 |
| 3680.jpg | Kanker | 1 |
| 3688.jpg | Kanker | 1 |
| 3691.jpg | Kanker | 1 |
| 3724.jpg | Kanker | 1 |
| 3736.jpg | Kanker | 1 |
| 3777.jpg | Kanker | 1 |
| 3801.jpg | Kanker | 1 |

| Nama | Diagnosa | Target |
|----------|----------|--------|
| 3553.jpg | Normal | 0 |
| 3554.jpg | Normal | 0 |
| 3565.jpg | Normal | 0 |
| 3569.jpg | Normal | 0 |
| 3576.jpg | Normal | 0 |
| 3605.jpg | Normal | 0 |
| 3612.jpg | Normal | 0 |
| 3625.jpg | Normal | 0 |
| 3630.jpg | Normal | 0 |
| 3644.jpg | Normal | 0 |
| 3653.jpg | Normal | 0 |
| 3681.jpg | Normal | 0 |
| 3699.jpg | Normal | 0 |
| 3720.jpg | Normal | 0 |
| 3751.jpg | Normal | 0 |
| 3757.jpg | Normal | 0 |
| 3810.jpg | Normal | 0 |
| 3823.jpg | Normal | 0 |
| 3828.jpg | Normal | 0 |
| 3834.jpg | Normal | 0 |

Lampiran 7. Pembagian Data *Training*

| <i>File</i> | <i>Contrast</i> | <i>Corelation</i> | <i>Dissimilarity</i> | <i>Energy</i> | <i>Entropy</i> | <i>Homogeneity</i> | <i>Max.Probability</i> | <i>Sum of Squares</i> | <i>Sum Average</i> | <i>Sum Variance</i> | <i>Sum Entropy</i> | <i>Diff. Variance</i> | <i>Diff. Entropy</i> | <i>IDM</i> | <i>Diagnosa</i> |
|-------------|-----------------|-------------------|----------------------|---------------|----------------|--------------------|------------------------|-----------------------|--------------------|---------------------|--------------------|-----------------------|----------------------|------------|-----------------|
| 2731 | 0.3085 | 0.9788 | 0.1925 | 0.2929 | 1.9472 | 0.9181 | 0.5050 | 37.66693 | 11.05545 | 115.3538 | 1.753428 | 0.308517 | 0.522479 | 0.9955 | Kanker |
| 2765 | 0.2693 | 0.9820 | 0.1553 | 0.3086 | 1.7751 | 0.9370 | 0.4949 | 36.40679 | 10.78385 | 113.8106 | 1.614815 | 0.269301 | 0.444589 | 0.9961 | Kanker |
| 2801 | 0.3375 | 0.9765 | 0.2020 | 0.2314 | 2.0775 | 0.9166 | 0.4038 | 31.89296 | 9.969393 | 94.14531 | 1.865215 | 0.337531 | 0.538504 | 0.9951 | Kanker |
| 2810 | 0.4212 | 0.9734 | 0.2672 | 0.1909 | 2.3197 | 0.8867 | 0.3831 | 30.7538 | 9.583364 | 88.17204 | 2.045394 | 0.421262 | 0.651913 | 0.9939 | Kanker |
| 2811 | 0.2685 | 0.9836 | 0.1610 | 0.3096 | 1.7994 | 0.9328 | 0.5217 | 37.08039 | 10.77292 | 116.0029 | 1.644204 | 0.268597 | 0.45915 | 0.9961 | Kanker |
| 2815 | 0.2781 | 0.9793 | 0.1672 | 0.2947 | 1.8931 | 0.9298 | 0.5075 | 38.21602 | 11.25123 | 117.5092 | 1.721736 | 0.278156 | 0.472701 | 0.9960 | Kanker |
| 2820 | 0.4260 | 0.9711 | 0.2366 | 0.2224 | 2.1467 | 0.9045 | 0.4170 | 32.27864 | 10.0091 | 95.04428 | 1.890401 | 0.426072 | 0.596302 | 0.9940 | Kanker |
| 2827 | 0.3314 | 0.9789 | 0.2243 | 0.1994 | 2.1811 | 0.9024 | 0.3776 | 29.57246 | 9.345037 | 85.78213 | 1.957857 | 0.331495 | 0.581562 | 0.9951 | Kanker |
| 2829 | 0.2885 | 0.9800 | 0.1633 | 0.3420 | 1.7182 | 0.9338 | 0.5373 | 38.97716 | 11.30294 | 123.5768 | 1.555752 | 0.288542 | 0.460475 | 0.9959 | Kanker |
| 2834 | 0.3609 | 0.9762 | 0.2079 | 0.2682 | 1.9290 | 0.9153 | 0.4551 | 33.90023 | 10.29004 | 103.5057 | 1.716333 | 0.360938 | 0.547509 | 0.9948 | Kanker |
| 2839 | 0.2627 | 0.9824 | 0.1607 | 0.3059 | 1.8140 | 0.9326 | 0.5148 | 37.46199 | 10.98055 | 116.6125 | 1.657758 | 0.262776 | 0.458805 | 0.9962 | Kanker |
| 2841 | 0.2947 | 0.9805 | 0.1670 | 0.3395 | 1.7316 | 0.9326 | 0.5436 | 38.86512 | 11.2216 | 123.3772 | 1.555402 | 0.2947 | 0.467922 | 0.9958 | Kanker |

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|------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|--------|--------|
| 2844 | 0.3256 | 0.9798 | 0.2159 | 0.2042 | 2.1688 | 0.9066 | 0.3861 | 30.01331 | 9.394271 | 87.40936 | 1.954652 | 0.325643 | 0.566124 | 0.9952 | Kanker |
| 2845 | 0.2083 | 0.9851 | 0.1393 | 0.2870 | 1.8860 | 0.9397 | 0.4933 | 37.29 | 11.03882 | 114.2194 | 1.741809 | 0.208395 | 0.419421 | 0.9969 | Kanker |
| 2871 | 0.2993 | 0.9792 | 0.1798 | 0.2926 | 1.9510 | 0.9252 | 0.5076 | 38.10839 | 11.14553 | 116.611 | 1.764488 | 0.299326 | 0.497532 | 0.9957 | Kanker |
| 2931 | 0.4289 | 0.9690 | 0.2393 | 0.2190 | 2.1635 | 0.9020 | 0.4092 | 32.65439 | 10.17485 | 95.42798 | 1.920642 | 0.428922 | 0.598324 | 0.9940 | Kanker |
| 2939 | 0.2450 | 0.9838 | 0.1508 | 0.2970 | 1.7950 | 0.9371 | 0.4745 | 35.24025 | 10.54862 | 109.3255 | 1.6478 | 0.245037 | 0.438906 | 0.9964 | Kanker |
| 3035 | 0.3388 | 0.9637 | 0.2037 | 0.3001 | 1.9980 | 0.9150 | 0.5174 | 43.75582 | 12.53511 | 133.8595 | 1.787011 | 0.338848 | 0.542291 | 0.9951 | Kanker |
| 3119 | 0.2844 | 0.9759 | 0.1579 | 0.3253 | 1.7866 | 0.9369 | 0.5216 | 39.75561 | 11.6644 | 124.5774 | 1.606092 | 0.284436 | 0.44772 | 0.9959 | Kanker |
| 3125 | 0.3113 | 0.9767 | 0.1672 | 0.2951 | 1.8238 | 0.9345 | 0.4798 | 36.29024 | 10.90983 | 112.4297 | 1.640335 | 0.311305 | 0.462674 | 0.9956 | Kanker |
| 3161 | 0.3303 | 0.9729 | 0.2025 | 0.2918 | 1.9321 | 0.9147 | 0.5079 | 38.86203 | 11.47923 | 119.1797 | 1.726375 | 0.3303 | 0.540686 | 0.9952 | Kanker |
| 3218 | 0.4026 | 0.9646 | 0.2365 | 0.2716 | 2.0137 | 0.9018 | 0.4816 | 38.18284 | 11.43042 | 115.9045 | 1.760009 | 0.402604 | 0.598782 | 0.9943 | Kanker |
| 3234 | 0.2707 | 0.9815 | 0.1603 | 0.2845 | 1.8254 | 0.9335 | 0.4579 | 34.44933 | 10.44853 | 106.1792 | 1.663756 | 0.270711 | 0.457289 | 0.9961 | Kanker |
| 3296 | 0.2687 | 0.9810 | 0.1602 | 0.3213 | 1.7994 | 0.9334 | 0.5320 | 38.74203 | 11.28336 | 121.2531 | 1.631226 | 0.268781 | 0.457826 | 0.9961 | Kanker |
| 3302 | 0.2772 | 0.9781 | 0.1590 | 0.3495 | 1.7290 | 0.9353 | 0.5531 | 40.75179 | 11.76391 | 129.1485 | 1.562249 | 0.277237 | 0.452096 | 0.9960 | Kanker |
| 3303 | 0.2925 | 0.9791 | 0.1671 | 0.3184 | 1.7505 | 0.9319 | 0.5033 | 36.98297 | 10.97699 | 116.1582 | 1.578685 | 0.292586 | 0.469369 | 0.9958 | Kanker |
| 3321 | 0.4084 | 0.9695 | 0.2140 | 0.2937 | 1.8961 | 0.9160 | 0.4756 | 36.09672 | 10.87243 | 111.2088 | 1.665827 | 0.408487 | 0.552688 | 0.9943 | Kanker |
| 3344 | 0.2968 | 0.9780 | 0.1849 | 0.2926 | 1.9738 | 0.9219 | 0.5077 | 38.62595 | 11.32074 | 117.8001 | 1.77895 | 0.296844 | 0.508608 | 0.9957 | Kanker |

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|------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|--------|--------|
| 3354 | 0.2677 | 0.9815 | 0.1495 | 0.3299 | 1.6955 | 0.9403 | 0.5047 | 37.24146 | 10.98465 | 117.7711 | 1.548021 | 0.267739 | 0.429686 | 0.9962 | Kanker |
| 3425 | 0.3742 | 0.9743 | 0.2067 | 0.2994 | 1.8450 | 0.9174 | 0.4793 | 35.64841 | 10.68235 | 110.6357 | 1.634573 | 0.374265 | 0.542331 | 0.9947 | Kanker |
| 3468 | 0.2535 | 0.9828 | 0.1372 | 0.3117 | 1.7115 | 0.9447 | 0.4661 | 34.94664 | 10.53177 | 109.5986 | 1.569265 | 0.253523 | 0.403657 | 0.9965 | Kanker |
| 3469 | 0.3360 | 0.9726 | 0.1840 | 0.3107 | 1.8401 | 0.9275 | 0.5155 | 39.04703 | 11.50444 | 121.5479 | 1.638845 | 0.336091 | 0.497042 | 0.9952 | Kanker |
| 3471 | 0.4433 | 0.9665 | 0.2219 | 0.2475 | 2.0719 | 0.9155 | 0.4463 | 35.25617 | 10.73266 | 105.4024 | 1.825287 | 0.443352 | 0.561182 | 0.9938 | Kanker |
| 3507 | 0.3037 | 0.9807 | 0.1720 | 0.2928 | 1.8370 | 0.9299 | 0.4886 | 35.58027 | 10.55692 | 110.2917 | 1.66512 | 0.303768 | 0.478661 | 0.9957 | Kanker |
| 3536 | 0.2944 | 0.9815 | 0.1809 | 0.2904 | 1.8554 | 0.9240 | 0.4884 | 35.53724 | 10.52926 | 110.0018 | 1.677395 | 0.294485 | 0.500149 | 0.9957 | Kanker |
| 3572 | 0.3376 | 0.9746 | 0.2169 | 0.2669 | 2.0990 | 0.9078 | 0.4875 | 38.24731 | 11.27307 | 114.5937 | 1.875166 | 0.337653 | 0.567831 | 0.9950 | Kanker |
| 3590 | 0.3124 | 0.9765 | 0.1754 | 0.3077 | 1.7950 | 0.9295 | 0.5065 | 37.70604 | 11.1735 | 117.6901 | 1.616927 | 0.312439 | 0.48364 | 0.9955 | Kanker |
| 3617 | 0.3347 | 0.9720 | 0.1794 | 0.3404 | 1.7300 | 0.9297 | 0.5344 | 39.93323 | 11.6848 | 126.5455 | 1.538245 | 0.334743 | 0.486981 | 0.9952 | Kanker |
| 3680 | 0.3879 | 0.9743 | 0.2308 | 0.2267 | 2.1582 | 0.9041 | 0.4312 | 33.22065 | 10.16143 | 97.9161 | 1.912672 | 0.38799 | 0.589741 | 0.9944 | Kanker |
| 3688 | 0.3389 | 0.9763 | 0.1845 | 0.2688 | 1.9124 | 0.9258 | 0.4494 | 34.11298 | 10.41553 | 103.8971 | 1.719702 | 0.33894 | 0.500444 | 0.9952 | Kanker |
| 3691 | 0.2834 | 0.9798 | 0.1631 | 0.3165 | 1.7941 | 0.9337 | 0.5102 | 37.79625 | 11.1216 | 118.0155 | 1.628982 | 0.283425 | 0.460331 | 0.9959 | Kanker |
| 3724 | 0.3263 | 0.9758 | 0.1754 | 0.3026 | 1.8707 | 0.9306 | 0.5013 | 37.94824 | 11.20156 | 117.2748 | 1.683996 | 0.326348 | 0.48026 | 0.9954 | Kanker |
| 3736 | 0.2773 | 0.9800 | 0.1590 | 0.3191 | 1.7687 | 0.9354 | 0.5015 | 37.23359 | 11.03716 | 116.5589 | 1.601483 | 0.27739 | 0.452548 | 0.9960 | Kanker |
| 3777 | 0.2984 | 0.9781 | 0.1717 | 0.2599 | 1.9716 | 0.9296 | 0.4599 | 35.53325 | 10.74366 | 107.2822 | 1.788025 | 0.298499 | 0.479062 | 0.9957 | Kanker |

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|------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|--------|--------|
| 3801 | 0.3266 | 0.9772 | 0.1732 | 0.2803 | 1.8634 | 0.9320 | 0.4572 | 34.59491 | 10.50481 | 106.2481 | 1.679247 | 0.326654 | 0.474956 | 0.9954 | Kanker |
| 2888 | 0.3209 | 0.9786 | 0.1849 | 0.3001 | 1.7759 | 0.9246 | 0.4625 | 34.30942 | 10.3803 | 107.0501 | 1.591885 | 0.320956 | 0.504246 | 0.9954 | Normal |
| 2993 | 0.2723 | 0.9815 | 0.1527 | 0.3209 | 1.6681 | 0.9383 | 0.4648 | 34.51244 | 10.44896 | 109.1633 | 1.509466 | 0.272365 | 0.438225 | 0.9961 | Normal |
| 2994 | 0.3135 | 0.9794 | 0.1791 | 0.3051 | 1.7902 | 0.9282 | 0.4773 | 35.71401 | 10.6329 | 111.5351 | 1.611393 | 0.313511 | 0.490202 | 0.9955 | Normal |
| 3007 | 0.3929 | 0.9713 | 0.2172 | 0.3239 | 1.8403 | 0.9138 | 0.5190 | 38.53266 | 11.28615 | 120.6611 | 1.611637 | 0.392923 | 0.560674 | 0.9944 | Normal |
| 3081 | 0.4035 | 0.9715 | 0.2098 | 0.2978 | 1.8355 | 0.9181 | 0.4623 | 34.96121 | 10.59044 | 108.2795 | 1.627477 | 0.403523 | 0.542788 | 0.9944 | Normal |
| 3082 | 0.3238 | 0.9797 | 0.1912 | 0.2916 | 1.7892 | 0.9196 | 0.4858 | 34.96783 | 10.42151 | 109.2267 | 1.610337 | 0.323897 | 0.517292 | 0.9954 | Normal |
| 3083 | 0.2984 | 0.9803 | 0.1617 | 0.3322 | 1.6892 | 0.9354 | 0.5157 | 37.27335 | 10.92834 | 118.4789 | 1.52459 | 0.298438 | 0.454915 | 0.9958 | Normal |
| 3096 | 0.3892 | 0.9735 | 0.2109 | 0.3082 | 1.8265 | 0.9167 | 0.4934 | 36.50978 | 10.82898 | 113.8935 | 1.61841 | 0.389246 | 0.547868 | 0.9945 | Normal |
| 3106 | 0.2174 | 0.9851 | 0.1189 | 0.3820 | 1.4752 | 0.9528 | 0.5538 | 39.33022 | 11.34626 | 128.8108 | 1.359432 | 0.217402 | 0.360899 | 0.9969 | Normal |
| 3126 | 0.3272 | 0.9773 | 0.1669 | 0.3573 | 1.6156 | 0.9358 | 0.5340 | 38.58748 | 11.23278 | 124.2431 | 1.450413 | 0.327206 | 0.458148 | 0.9954 | Normal |
| 3127 | 0.2725 | 0.9816 | 0.1507 | 0.3652 | 1.5725 | 0.9397 | 0.5479 | 38.96504 | 11.26458 | 126.197 | 1.426028 | 0.272549 | 0.43258 | 0.9961 | Normal |
| 3139 | 0.3322 | 0.9743 | 0.1998 | 0.3002 | 1.8221 | 0.9162 | 0.5059 | 37.89887 | 11.24455 | 117.9813 | 1.629136 | 0.332261 | 0.53407 | 0.9952 | Normal |
| 3140 | 0.3487 | 0.9766 | 0.1909 | 0.2840 | 1.8040 | 0.9236 | 0.4238 | 31.94017 | 9.923928 | 98.75034 | 1.605066 | 0.348744 | 0.513314 | 0.9951 | Normal |
| 3190 | 0.3991 | 0.9729 | 0.2146 | 0.2952 | 1.8722 | 0.9154 | 0.4747 | 35.42121 | 10.62381 | 109.6223 | 1.649465 | 0.399112 | 0.554593 | 0.9944 | Normal |
| 3231 | 0.3491 | 0.9756 | 0.1992 | 0.2936 | 1.8580 | 0.9192 | 0.4562 | 34.74872 | 10.53189 | 107.1993 | 1.653998 | 0.349112 | 0.531334 | 0.9950 | Normal |

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|------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|--------|--------|
| 3254 | 0.3049 | 0.9807 | 0.1809 | 0.2900 | 1.8279 | 0.9251 | 0.4859 | 35.68625 | 10.567 | 110.8957 | 1.653094 | 0.304994 | 0.497126 | 0.9956 | Normal |
| 3260 | 0.3411 | 0.9777 | 0.1782 | 0.3258 | 1.6842 | 0.9307 | 0.5000 | 36.05636 | 10.68903 | 114.705 | 1.501593 | 0.341176 | 0.48348 | 0.9952 | Normal |
| 3282 | 0.2485 | 0.9826 | 0.1354 | 0.3684 | 1.5152 | 0.9465 | 0.5239 | 37.92547 | 11.12209 | 123.3156 | 1.382016 | 0.24856 | 0.397324 | 0.9964 | Normal |
| 3397 | 0.4279 | 0.9709 | 0.2322 | 0.2593 | 1.9656 | 0.9082 | 0.4114 | 31.71868 | 9.903462 | 95.90222 | 1.723241 | 0.427941 | 0.587059 | 0.9939 | Normal |
| 3411 | 0.2749 | 0.9809 | 0.1651 | 0.3191 | 1.7241 | 0.9315 | 0.4907 | 36.32099 | 10.8193 | 114.3579 | 1.560201 | 0.274908 | 0.467358 | 0.9960 | Normal |
| 3414 | 0.3302 | 0.9782 | 0.1810 | 0.3304 | 1.7323 | 0.9282 | 0.5182 | 37.68148 | 11.00509 | 119.3784 | 1.549516 | 0.330239 | 0.492343 | 0.9953 | Normal |
| 3418 | 0.3593 | 0.9747 | 0.1822 | 0.3286 | 1.6973 | 0.9304 | 0.4785 | 35.68058 | 10.72298 | 112.9219 | 1.510381 | 0.359314 | 0.48736 | 0.9950 | Normal |
| 3434 | 0.3096 | 0.9783 | 0.1739 | 0.3530 | 1.6642 | 0.9300 | 0.5412 | 38.96629 | 11.31327 | 124.6774 | 1.494624 | 0.309651 | 0.480483 | 0.9956 | Normal |
| 3467 | 0.4345 | 0.9684 | 0.2375 | 0.2689 | 1.9650 | 0.9057 | 0.4329 | 33.55956 | 10.36173 | 101.8441 | 1.715388 | 0.434528 | 0.596263 | 0.9938 | Normal |
| 3473 | 0.3315 | 0.9761 | 0.1828 | 0.3084 | 1.8111 | 0.9270 | 0.4779 | 36.68706 | 10.93496 | 114.2196 | 1.624007 | 0.331587 | 0.496586 | 0.9953 | Normal |
| 3475 | 0.2799 | 0.9804 | 0.1523 | 0.3407 | 1.5975 | 0.9391 | 0.4816 | 35.45977 | 10.67249 | 113.3868 | 1.449495 | 0.279933 | 0.435148 | 0.9960 | Normal |
| 3484 | 0.3273 | 0.9763 | 0.1893 | 0.3402 | 1.7174 | 0.9231 | 0.5331 | 38.79533 | 11.32212 | 123.2854 | 1.528494 | 0.327328 | 0.512565 | 0.9953 | Normal |
| 3547 | 0.3791 | 0.9761 | 0.2068 | 0.2650 | 1.8857 | 0.9165 | 0.4388 | 32.60235 | 9.965074 | 99.85073 | 1.688522 | 0.379136 | 0.541334 | 0.9947 | Normal |
| 3553 | 0.3197 | 0.9793 | 0.1845 | 0.2983 | 1.7690 | 0.9246 | 0.4641 | 34.14152 | 10.30754 | 106.6744 | 1.588014 | 0.31973 | 0.503828 | 0.9954 | Normal |
| 3554 | 0.2463 | 0.9830 | 0.1351 | 0.3616 | 1.4699 | 0.9460 | 0.5022 | 36.21972 | 10.7898 | 118.1335 | 1.342717 | 0.246354 | 0.398857 | 0.9965 | Normal |
| 3565 | 0.2989 | 0.9803 | 0.1544 | 0.3342 | 1.6552 | 0.9404 | 0.5021 | 36.72802 | 10.82647 | 117.0209 | 1.502065 | 0.298928 | 0.432405 | 0.9958 | Normal |

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|------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|--------|--------|
| 3569 | 0.3456 | 0.9749 | 0.1971 | 0.3116 | 1.8334 | 0.9193 | 0.5187 | 38.57855 | 11.28955 | 120.2815 | 1.642674 | 0.345619 | 0.526951 | 0.9951 | Normal |
| 3605 | 0.3000 | 0.9808 | 0.1746 | 0.3312 | 1.7074 | 0.9280 | 0.5375 | 38.16822 | 11.04369 | 121.3327 | 1.544549 | 0.300061 | 0.484333 | 0.9957 | Normal |
| 3612 | 0.2925 | 0.9811 | 0.1640 | 0.3210 | 1.7004 | 0.9336 | 0.5104 | 36.78439 | 10.80306 | 116.5388 | 1.544244 | 0.292555 | 0.460817 | 0.9958 | Normal |
| 3625 | 0.3116 | 0.9788 | 0.1667 | 0.3463 | 1.6429 | 0.9344 | 0.5213 | 37.85682 | 11.07151 | 121.1959 | 1.481536 | 0.311673 | 0.462216 | 0.9956 | Normal |
| 3630 | 0.3034 | 0.9784 | 0.1723 | 0.3192 | 1.7467 | 0.9312 | 0.4738 | 35.89309 | 10.77543 | 112.6573 | 1.56534 | 0.303431 | 0.476091 | 0.9956 | Normal |
| 3644 | 0.3031 | 0.9759 | 0.1737 | 0.3654 | 1.6706 | 0.9293 | 0.5792 | 42.05813 | 11.98845 | 134.8996 | 1.50299 | 0.303125 | 0.481742 | 0.9957 | Normal |
| 3653 | 0.3655 | 0.9750 | 0.1944 | 0.2843 | 1.8328 | 0.9233 | 0.4185 | 32.03101 | 9.971048 | 98.51423 | 1.631062 | 0.365594 | 0.516976 | 0.9949 | Normal |
| 3699 | 0.4060 | 0.9711 | 0.2383 | 0.2358 | 2.0535 | 0.9013 | 0.4239 | 33.04498 | 10.23018 | 98.62558 | 1.811757 | 0.406005 | 0.601815 | 0.9942 | Normal |
| 3720 | 0.2977 | 0.9781 | 0.1735 | 0.3526 | 1.6501 | 0.9293 | 0.5308 | 38.61118 | 11.29608 | 123.8042 | 1.469906 | 0.297794 | 0.482778 | 0.9957 | Normal |
| 3751 | 0.3843 | 0.9731 | 0.2069 | 0.2814 | 1.8871 | 0.9182 | 0.4233 | 32.88656 | 10.17687 | 100.5758 | 1.671138 | 0.384314 | 0.541367 | 0.9946 | Normal |
| 3757 | 0.3408 | 0.9762 | 0.2131 | 0.2333 | 1.9661 | 0.9088 | 0.4114 | 31.74067 | 9.943107 | 95.20256 | 1.768411 | 0.34087 | 0.55849 | 0.9951 | Normal |
| 3810 | 0.3009 | 0.9801 | 0.1793 | 0.3108 | 1.7704 | 0.9250 | 0.5060 | 36.62066 | 10.808 | 114.8356 | 1.599728 | 0.30095 | 0.495406 | 0.9957 | Normal |
| 3828 | 0.3914 | 0.9727 | 0.2159 | 0.2888 | 1.8438 | 0.9136 | 0.4382 | 33.31392 | 10.25441 | 102.7754 | 1.627463 | 0.391422 | 0.559202 | 0.9944 | Normal |
| 3834 | 0.2881 | 0.9793 | 0.1541 | 0.3552 | 1.6247 | 0.9395 | 0.5238 | 38.72635 | 11.30058 | 124.2905 | 1.468437 | 0.288143 | 0.436261 | 0.9959 | Normal |

Lampiran 8. Pembagian Data *Testing*

| <i>File</i> | <i>Contrast</i> | <i>Correlation</i> | <i>Dissimilarity</i> | <i>Energy</i> | <i>Entropy</i> | <i>Homogeneity</i> | <i>Max.Probability</i> | <i>Sum of Squares</i> | <i>Sum Average</i> | <i>Sum Variance</i> | <i>Sum Entropy</i> | <i>Diff. Variance</i> | <i>Diff. Entropy</i> | <i>IDM</i> | <i>Diagnosa</i> |
|-------------|-----------------|--------------------|----------------------|---------------|----------------|--------------------|------------------------|-----------------------|--------------------|---------------------|--------------------|-----------------------|----------------------|------------|-----------------|
| 2823 | 0.2314 | 0.9823 | 0.1378 | 0.3417 | 1.6632 | 0.9435 | 0.5230 | 38.54915 | 11.34372 | 122.5653 | 1.51661 | 0.231434 | 0.409181 | 0.9966 | Kanker |
| 2835 | 0.2359 | 0.9827 | 0.1408 | 0.3425 | 1.6960 | 0.9421 | 0.5291 | 39.06547 | 11.38615 | 123.7485 | 1.554756 | 0.235938 | 0.415528 | 0.9966 | Kanker |
| 2842 | 0.3536 | 0.9714 | 0.2063 | 0.2712 | 1.9817 | 0.9153 | 0.4753 | 37.16359 | 11.16265 | 112.6546 | 1.767854 | 0.35386 | 0.545761 | 0.9949 | Kanker |
| 2847 | 0.3139 | 0.9784 | 0.1903 | 0.2657 | 1.9548 | 0.9212 | 0.4371 | 33.62832 | 10.29807 | 101.8372 | 1.751412 | 0.313909 | 0.517501 | 0.9954 | Kanker |
| 2852 | 0.2704 | 0.9815 | 0.1648 | 0.2995 | 1.8702 | 0.9313 | 0.5075 | 37.47605 | 11.01437 | 115.6199 | 1.707646 | 0.270496 | 0.467074 | 0.9961 | Kanker |
| 2854 | 0.2913 | 0.9804 | 0.1733 | 0.2974 | 1.8097 | 0.9282 | 0.4758 | 35.16827 | 10.55732 | 109.2542 | 1.631477 | 0.29136 | 0.483979 | 0.9958 | Kanker |
| 2861 | 0.3103 | 0.9775 | 0.1609 | 0.3017 | 1.8471 | 0.9378 | 0.4930 | 37.4047 | 11.07543 | 115.7466 | 1.67266 | 0.310386 | 0.447099 | 0.9956 | Kanker |
| 2921 | 0.3572 | 0.9766 | 0.2068 | 0.2671 | 2.0088 | 0.9156 | 0.4775 | 35.67368 | 10.61605 | 108.175 | 1.791339 | 0.357261 | 0.545643 | 0.9949 | Kanker |
| 3249 | 0.3769 | 0.9735 | 0.2227 | 0.2438 | 2.0098 | 0.9079 | 0.4001 | 31.34349 | 9.875123 | 93.44217 | 1.791378 | 0.3769 | 0.574408 | 0.9946 | Kanker |
| 3482 | 0.2340 | 0.9830 | 0.1408 | 0.3465 | 1.6595 | 0.9416 | 0.5267 | 38.56721 | 11.2879 | 122.838 | 1.514703 | 0.234007 | 0.416739 | 0.9966 | Kanker |
| 3537 | 0.2616 | 0.9820 | 0.1596 | 0.3230 | 1.7887 | 0.9329 | 0.5310 | 38.52149 | 11.2061 | 120.72 | 1.626283 | 0.261612 | 0.457771 | 0.9962 | Kanker |
| 3606 | 0.3882 | 0.9677 | 0.2158 | 0.2237 | 2.1880 | 0.9131 | 0.4314 | 35.91195 | 10.96642 | 105.1209 | 1.942051 | 0.388235 | 0.560425 | 0.9945 | Kanker |
| 3001 | 0.2476 | 0.9831 | 0.1342 | 0.3571 | 1.5521 | 0.9471 | 0.5174 | 37.52825 | 11.01961 | 121.278 | 1.419781 | 0.24761 | 0.394526 | 0.9965 | Normal |
| 3100 | 0.2884 | 0.9793 | 0.1554 | 0.3768 | 1.5742 | 0.9394 | 0.5586 | 39.91406 | 11.50683 | 129.6349 | 1.409499 | 0.28848 | 0.436819 | 0.9959 | Normal |
| 3144 | 0.3492 | 0.9750 | 0.1939 | 0.3021 | 1.8267 | 0.9223 | 0.4710 | 35.64945 | 10.73385 | 110.6226 | 1.627825 | 0.349295 | 0.518417 | 0.9950 | Normal |
| 3196 | 0.3470 | 0.9760 | 0.1888 | 0.333 | 1.7651 | 0.9249 | 0.5233 | 38.52101 | 11.21434 | 121.65 | 1.572011 | 0.347028 | 0.50787 | 0.9951 | Normal |
| 3321 | 0.3192 | 0.9787 | 0.1841 | 0.3005 | 1.7727 | 0.9249 | 0.4619 | 34.28397 | 10.37672 | 106.9773 | 1.590967 | 0.319271 | 0.502569 | 0.9954 | Normal |
| 3398 | 0.3161 | 0.9781 | 0.1660 | 0.3300 | 1.6818 | 0.9348 | 0.4891 | 36.06073 | 10.76896 | 114.3355 | 1.511144 | 0.316115 | 0.460445 | 0.9956 | Normal |

| | | | | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|--------|--------|
| 3455 | 0.2978 | 0.9797 | 0.1602 | 0.3481 | 1.6172 | 0.9363 | 0.5200 | 37.60429 | 11.0322 | 120.7193 | 1.460321 | 0.297825 | 0.451173 | 0.9958 | Normal |
| 3477 | 0.3178 | 0.9803 | 0.1716 | 0.3012 | 1.7695 | 0.9315 | 0.4823 | 35.0153 | 10.41085 | 109.7045 | 1.596245 | 0.317862 | 0.474634 | 0.9955 | Normal |
| 3552 | 0.3568 | 0.9746 | 0.1916 | 0.3287 | 1.7866 | 0.9237 | 0.5303 | 38.91054 | 11.32359 | 122.4684 | 1.592191 | 0.356893 | 0.512545 | 0.9951 | Normal |
| 3576 | 0.3382 | 0.9776 | 0.1861 | 0.3358 | 1.7079 | 0.9265 | 0.5258 | 37.7549 | 11.0224 | 120.1934 | 1.518851 | 0.338235 | 0.501751 | 0.9952 | Normal |
| 3681 | 0.3045 | 0.9808 | 0.1797 | 0.2840 | 1.8241 | 0.9253 | 0.4791 | 34.92669 | 10.41697 | 108.3499 | 1.652788 | 0.304565 | 0.495963 | 0.9956 | Normal |
| 3823 | 0.3477 | 0.9757 | 0.1956 | 0.2988 | 1.8295 | 0.9217 | 0.4588 | 34.88745 | 10.55993 | 108.2126 | 1.623286 | 0.347733 | 0.522524 | 0.9950 | Normal |

Lampiran 9. Normalisasi Data Training

| <i>File</i> | <i>Contrast</i> | <i>Corelation</i> | <i>Dissimilarity</i> | <i>Energy</i> | <i>Entropy</i> | <i>Homogeneity</i> | <i>Max.Probability</i> | <i>Sum of Squares</i> | <i>Sum Average</i> | <i>Sum Variance</i> | <i>Sum Entropy</i> | <i>Diff. Variance</i> | <i>Diff. Entropy</i> | <i>IDM</i> |
|-------------|-----------------|-------------------|----------------------|---------------|----------------|--------------------|------------------------|-----------------------|--------------------|---------------------|--------------------|-----------------------|----------------------|------------|
| 2731 | -0.29747 | 0.368651 | 0.297053 | -0.21089 | 0.750563 | -0.58674 | 0.461948 | 0.535738 | 0.451897 | 0.2615 | 0.841416 | -0.29747 | 0.423728 | 0.229242 |
| 2765 | -1.06089 | 1.105181 | -1.01324 | 0.190298 | -0.33013 | 0.97048 | 0.226135 | 0.058631 | -0.03602 | 0.110043 | -0.19011 | -1.06089 | -0.99937 | 1.035468 |
| 2801 | 0.267352 | -0.14588 | 0.630562 | -1.77876 | 1.568929 | -0.7092 | -1.90947 | -1.65037 | -1.49917 | -1.82001 | 1.673307 | 0.267352 | 0.716519 | -0.37896 |
| 2810 | 1.897392 | -0.84859 | 2.927355 | -2.80844 | 3.089669 | -3.18133 | -2.39402 | -2.08167 | -2.19265 | -2.40626 | 3.01416 | 1.897392 | 2.788569 | -2.12905 |
| 2811 | -1.07461 | 1.478883 | -0.81465 | 0.214357 | -0.17763 | 0.621938 | 0.854612 | 0.313663 | -0.05567 | 0.325206 | 0.028596 | -1.07461 | -0.73333 | 1.067171 |
| 2815 | -0.88853 | 0.495511 | -0.59554 | -0.16578 | 0.410639 | 0.379366 | 0.521171 | 0.74363 | 0.803594 | 0.473042 | 0.60557 | -0.88853 | -0.48574 | 0.901209 |
| 2820 | 1.991031 | -1.37592 | 1.848035 | -2.0082 | 2.003432 | -1.70828 | -1.60008 | -1.50435 | -1.42784 | -1.73178 | 1.860736 | 1.991031 | 1.772509 | -1.96478 |
| 2827 | 0.149856 | 0.40518 | 1.416307 | -2.5935 | 2.218888 | -1.88435 | -2.52395 | -2.52895 | -2.6208 | -2.64081 | 2.362731 | 0.149856 | 1.503212 | -0.38951 |
| 2829 | -0.68634 | 0.637934 | -0.73262 | 1.039807 | -0.68766 | 0.7061 | 1.219639 | 1.031808 | 0.896499 | 1.068539 | -0.62964 | -0.68634 | -0.70912 | 0.706617 |
| 2834 | 0.723024 | -0.22413 | 0.837792 | -0.83912 | 0.636213 | -0.82175 | -0.70779 | -0.89039 | -0.92313 | -0.90134 | 0.565365 | 0.723024 | 0.881037 | -0.77259 |
| 2839 | -1.18793 | 1.197974 | -0.82436 | 0.119399 | -0.08556 | 0.609376 | 0.692737 | 0.458144 | 0.317328 | 0.385029 | 0.129468 | -1.18793 | -0.73963 | 1.135668 |
| 2841 | -0.56645 | 0.752995 | -0.6031 | 0.97671 | -0.60337 | 0.609758 | 1.36644 | 0.989388 | 0.750372 | 1.048955 | -0.63225 | -0.56645 | -0.57307 | 0.564031 |
| 2844 | 0.035938 | 0.612431 | 1.121653 | -2.46947 | 2.141824 | -1.53436 | -2.32475 | -2.36203 | -2.53235 | -2.48111 | 2.338878 | 0.035938 | 1.221138 | -0.24105 |
| 2845 | -2.24659 | 1.80272 | -1.57773 | -0.36218 | 0.366338 | 1.193999 | 0.188089 | 0.393027 | 0.422011 | 0.150165 | 0.754949 | -2.24659 | -1.4592 | 2.161149 |
| 2871 | -0.47639 | 0.475508 | -0.15086 | -0.21911 | 0.774352 | -0.00232 | 0.524043 | 0.702879 | 0.613711 | 0.384879 | 0.923727 | -0.47639 | -0.03208 | 0.430089 |
| 2931 | 2.046499 | -1.85714 | 1.943015 | -2.09363 | 2.108541 | -1.91979 | -1.78205 | -1.36208 | -1.13008 | -1.69412 | 2.085787 | 2.046499 | 1.809453 | -1.94149 |
| 2939 | -1.53327 | 1.515267 | -1.17406 | -0.10603 | -0.205 | 0.977551 | -0.25195 | -0.38304 | -0.45861 | -0.33015 | 0.05536 | -1.53327 | -1.1032 | 1.46319 |
| 3035 | 0.292999 | -3.07564 | 0.692084 | -0.02891 | 1.069343 | -0.84119 | 0.75196 | 2.841079 | 3.110044 | 2.077742 | 1.091338 | 0.292999 | 0.785698 | -0.35941 |
| 3119 | -0.76626 | -0.27708 | -0.92366 | 0.613678 | -0.25794 | 0.96071 | 0.851023 | 1.326541 | 1.545845 | 1.166744 | -0.25502 | -0.76626 | -0.94217 | 0.799811 |

| | | | | | | | | | | | | | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 3125 | -0.24319 | -0.096 | -0.59554 | -0.15541 | -0.02446 | 0.764473 | -0.1292 | 0.014503 | 0.190299 | -0.02549 | -0.00019 | -0.24319 | -0.66896 | 0.267154 |
| 3161 | 0.126595 | -0.97745 | 0.647832 | -0.23913 | 0.655595 | -0.86739 | 0.529426 | 0.988218 | 1.213192 | 0.636993 | 0.640097 | 0.126595 | 0.756382 | -0.19969 |
| 3218 | 1.534167 | -2.85808 | 1.844797 | -0.75408 | 1.16785 | -1.93409 | -0.08721 | 0.731069 | 1.125515 | 0.315547 | 0.890394 | 1.534167 | 1.81783 | -1.55011 |
| 3234 | -1.03346 | 0.981052 | -0.83731 | -0.42376 | -0.01455 | 0.683232 | -0.64103 | -0.68249 | -0.63842 | -0.63895 | 0.174096 | -1.03346 | -0.76733 | 1.026297 |
| 3296 | -1.07103 | 0.87537 | -0.84271 | 0.513661 | -0.17749 | 0.674826 | 1.095092 | 0.942786 | 0.86133 | 0.840478 | -0.06798 | -1.07103 | -0.75752 | 1.062334 |
| 3302 | -0.90642 | 0.210786 | -0.8848 | 1.232418 | -0.61979 | 0.82789 | 1.589691 | 1.703708 | 1.724611 | 1.615375 | -0.58129 | -0.90642 | -0.86221 | 0.906864 |
| 3303 | -0.60761 | 0.453202 | -0.59878 | 0.438985 | -0.48426 | 0.550361 | 0.422826 | 0.276781 | 0.310943 | 0.340444 | -0.45897 | -0.60761 | -0.54663 | 0.628069 |
| 3321 | 1.648681 | -1.7385 | 1.053656 | -0.18982 | 0.429884 | -0.76208 | -0.22575 | -0.05877 | 0.123096 | -0.14532 | 0.189515 | 1.648681 | 0.975663 | -1.52286 |
| 3344 | -0.5247 | 0.193509 | 0.028302 | -0.21951 | 0.917661 | -0.27148 | 0.525478 | 0.898834 | 0.928477 | 0.501588 | 1.03135 | -0.5247 | 0.170297 | 0.431411 |
| 3354 | -1.09131 | 0.9858 | -1.21831 | 0.73099 | -0.82963 | 1.240696 | 0.455488 | 0.374649 | 0.324703 | 0.498742 | -0.68717 | -1.09131 | -1.27167 | 1.096744 |
| 3425 | 0.98247 | -0.65777 | 0.794619 | -0.04451 | 0.108992 | -0.64608 | -0.13997 | -0.2285 | -0.21836 | -0.20156 | -0.04307 | 0.98247 | 0.786441 | -0.98264 |
| 3468 | -1.36805 | 1.281908 | -1.6522 | 0.268847 | -0.72957 | 1.604498 | -0.44936 | -0.4942 | -0.48888 | -0.30335 | -0.52908 | -1.36805 | -1.74723 | 1.517601 |
| 3469 | 0.23932 | -1.04423 | -0.00516 | 0.242205 | 0.077839 | 0.191104 | 0.708171 | 1.058264 | 1.258489 | 0.869417 | -0.01128 | 0.23932 | -0.04102 | -0.26509 |
| 3471 | 2.327416 | -2.43025 | 1.33212 | -1.36842 | 1.533521 | -0.80115 | -0.91238 | -0.37701 | -0.12799 | -0.71518 | 1.376179 | 2.327416 | 1.130862 | -2.19126 |
| 3507 | -0.38991 | 0.804336 | -0.42609 | -0.21439 | 0.05872 | 0.389738 | 0.078975 | -0.2543 | -0.44369 | -0.23533 | 0.184252 | -0.38991 | -0.37685 | 0.430119 |
| 3536 | -0.57063 | 0.993186 | -0.11201 | -0.27512 | 0.173855 | -0.10508 | 0.073951 | -0.27059 | -0.49339 | -0.26378 | 0.2756 | -0.57063 | 0.015751 | 0.499481 |
| 3572 | 0.269738 | -0.5886 | 1.154032 | -0.87255 | 1.703529 | -1.43703 | 0.053133 | 0.755477 | 0.842837 | 0.186892 | 1.747367 | 0.269738 | 1.252341 | -0.47166 |
| 3590 | -0.22112 | -0.14374 | -0.30737 | 0.1657 | -0.2051 | 0.350342 | 0.4982 | 0.550543 | 0.663961 | 0.490788 | -0.17439 | -0.22112 | -0.28588 | 0.217642 |
| 3617 | 0.213077 | -1.18193 | -0.1649 | 0.998922 | -0.61299 | 0.370361 | 1.151085 | 1.393792 | 1.582501 | 1.359908 | -0.75992 | 0.213077 | -0.22485 | -0.19317 |
| 3680 | 1.24967 | -0.64896 | 1.646202 | -1.91521 | 2.075086 | -1.74647 | -1.26807 | -1.14769 | -1.15419 | -1.44993 | 2.026474 | 1.24967 | 1.652637 | -1.32238 |
| 3688 | 0.294788 | -0.20317 | 0.01535 | -0.82428 | 0.531977 | 0.046412 | -0.83951 | -0.80984 | -0.69769 | -0.86292 | 0.590437 | 0.294788 | 0.021137 | -0.18874 |
| 3691 | -0.78594 | 0.612576 | -0.74125 | 0.390983 | -0.21094 | 0.700462 | 0.584701 | 0.584698 | 0.570726 | 0.522728 | -0.08468 | -0.78594 | -0.71176 | 0.76482 |
| 3724 | 0.049656 | -0.31076 | -0.30629 | 0.036933 | 0.270015 | 0.444075 | 0.375806 | 0.642246 | 0.714377 | 0.450033 | 0.324725 | 0.049656 | -0.34764 | 0.008242 |

| | | | | | | | | | | | | | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 3736 | -0.90344 | 0.648096 | -0.88372 | 0.457039 | -0.37006 | 0.83663 | 0.379037 | 0.37167 | 0.419039 | 0.379773 | -0.28932 | -0.90344 | -0.85396 | 0.903001 |
| 3777 | -0.4925 | 0.225561 | -0.43796 | -1.05079 | 0.903489 | 0.364934 | -0.59509 | -0.27211 | -0.10823 | -0.53069 | 1.098883 | -0.4925 | -0.36952 | 0.515424 |
| 3801 | 0.05562 | 0.004493 | -0.384 | -0.53264 | 0.224123 | 0.557041 | -0.65682 | -0.62737 | -0.53731 | -0.63218 | 0.289384 | 0.05562 | -0.44455 | 0.019956 |
| 2888 | -0.05532 | 0.340695 | 0.029381 | -0.02803 | -0.32531 | -0.05066 | -0.53299 | -0.73546 | -0.76099 | -0.55347 | -0.36075 | -0.05532 | 0.090589 | 0.024184 |
| 2993 | -1.00125 | 0.990273 | -1.10498 | 0.502152 | -1.00192 | 1.082735 | -0.48059 | -0.6586 | -0.63765 | -0.34607 | -0.97409 | -1.00125 | -1.11565 | 1.047764 |
| 2994 | -0.20025 | 0.504136 | -0.17785 | 0.099499 | -0.23515 | 0.248031 | -0.18699 | -0.20367 | -0.3072 | -0.11329 | -0.21557 | -0.20025 | -0.166 | 0.120067 |
| 3007 | 1.345695 | -1.32796 | 1.166984 | 0.578028 | 0.079308 | -0.94604 | 0.790724 | 0.863515 | 0.866338 | 0.782385 | -0.21376 | 1.345695 | 1.121577 | -1.40014 |
| 3081 | 1.552059 | -1.29349 | 0.90471 | -0.08626 | 0.049245 | -0.58883 | -0.53873 | -0.48869 | -0.38348 | -0.43281 | -0.09588 | 1.552059 | 0.794788 | -1.44742 |
| 3082 | 0.001942 | 0.569401 | 0.249563 | -0.24405 | -0.24138 | -0.46081 | 0.012574 | -0.48618 | -0.68696 | -0.33985 | -0.22343 | 0.001942 | 0.32896 | 0.066889 |
| 3083 | -0.49369 | 0.712981 | -0.78766 | 0.791412 | -0.8695 | 0.842446 | 0.712478 | 0.386721 | 0.223542 | 0.568209 | -0.86154 | -0.49369 | -0.81071 | 0.589636 |
| 3096 | 1.274124 | -0.83002 | 0.944644 | 0.178789 | -0.00754 | -0.70346 | 0.190242 | 0.097623 | 0.045052 | 0.118174 | -0.16336 | 1.274124 | 0.887597 | -1.27534 |
| 3106 | -2.07124 | 1.812914 | -2.29547 | 2.058315 | -2.21317 | 2.272974 | 1.605843 | 1.165482 | 0.974324 | 1.582228 | -2.09061 | -2.07124 | -2.52844 | 2.127412 |
| 3126 | 0.066356 | 0.030203 | -0.60634 | 1.429549 | -1.3314 | 0.86909 | 1.140676 | 0.884269 | 0.770461 | 1.133939 | -1.41355 | 0.066356 | -0.75164 | 0.050268 |
| 3127 | -0.99767 | 1.008898 | -1.17838 | 1.632243 | -1.602 | 1.19259 | 1.467656 | 1.027221 | 0.827591 | 1.325704 | -1.59502 | -0.99767 | -1.21878 | 1.04405 |
| 3139 | 0.164767 | -0.66205 | 0.551772 | -0.02457 | -0.03499 | -0.74447 | 0.483484 | 0.623554 | 0.791596 | 0.519375 | -0.08353 | 0.164767 | 0.635505 | -0.19544 |
| 3140 | 0.485645 | -0.12201 | 0.240928 | -0.43712 | -0.14885 | -0.13132 | -1.44107 | -1.63249 | -1.58085 | -1.36805 | -0.26266 | 0.485645 | 0.256277 | -0.42255 |
| 3190 | 1.466174 | -0.97553 | 1.073084 | -0.15096 | 0.279765 | -0.81363 | -0.24693 | -0.31452 | -0.32354 | -0.30102 | 0.067753 | 1.466174 | 1.010465 | -1.43914 |
| 3231 | 0.492802 | -0.3434 | 0.532344 | -0.19312 | 0.190301 | -0.49631 | -0.6823 | -0.56914 | -0.48866 | -0.53883 | 0.101484 | 0.492802 | 0.585506 | -0.5159 |
| 3254 | -0.36605 | 0.816022 | -0.11201 | -0.28422 | 0.001386 | -0.00919 | 0.014369 | -0.21418 | -0.42558 | -0.17604 | 0.094755 | -0.36605 | -0.03949 | 0.314144 |
| 3260 | 0.338327 | 0.119361 | -0.20807 | 0.628428 | -0.90086 | 0.44846 | 0.34458 | -0.07405 | -0.20636 | 0.197818 | -1.03268 | 0.338327 | -0.2888 | -0.24857 |
| 3282 | -1.46468 | 1.247462 | -1.71588 | 1.712455 | -1.96208 | 1.757481 | 0.905939 | 0.633622 | 0.571606 | 1.042907 | -1.92254 | -1.46468 | -1.86294 | 1.505657 |
| 3397 | 2.027413 | -1.43683 | 1.695851 | -1.06716 | 0.86591 | -1.40353 | -1.73072 | -1.71636 | -1.61761 | -1.64758 | 0.616775 | 2.027413 | 1.603635 | -2.03088 |
| 3411 | -0.95175 | 0.860021 | -0.6711 | 0.456591 | -0.65016 | 0.520094 | 0.126713 | 0.026145 | 0.027659 | 0.163758 | -0.59653 | -0.95175 | -0.58337 | 0.900418 |

| | | | | | | | | | | | | | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 3414 | 0.125402 | 0.2276 | -0.11093 | 0.745102 | -0.59866 | 0.247688 | 0.771701 | 0.541244 | 0.361414 | 0.65649 | -0.67605 | 0.125402 | -0.12688 | -0.12088 |
| 3418 | 0.691413 | -0.56996 | -0.0656 | 0.69809 | -0.8187 | 0.425138 | -0.15827 | -0.21632 | -0.14538 | 0.022819 | -0.96728 | 0.691413 | -0.21793 | -0.59443 |
| 3434 | -0.2754 | 0.257073 | -0.35917 | 1.319966 | -1.02655 | 0.395141 | 1.311165 | 1.027693 | 0.915047 | 1.176557 | -1.08454 | -0.2754 | -0.34357 | 0.270788 |
| 3467 | 2.155645 | -2.00277 | 1.882573 | -0.82153 | 0.86213 | -1.6142 | -1.22679 | -1.01937 | -0.79434 | -1.06441 | 0.55833 | 2.155645 | 1.771807 | -2.17697 |
| 3473 | 0.151645 | -0.23037 | -0.04617 | 0.185118 | -0.10403 | 0.149084 | -0.17335 | 0.164744 | 0.23543 | 0.150182 | -0.12171 | 0.151645 | -0.04936 | -0.14052 |
| 3475 | -0.85393 | 0.734618 | -1.11901 | 1.005729 | -1.44554 | 1.149763 | -0.08649 | -0.29992 | -0.23609 | 0.068447 | -1.42038 | -0.85393 | -1.17187 | 0.931972 |
| 3484 | 0.068742 | -0.19158 | 0.182645 | 0.993925 | -0.69266 | -0.17849 | 1.121653 | 0.962967 | 0.930954 | 1.039941 | -0.83249 | 0.068742 | 0.242584 | -0.12994 |
| 3547 | 1.077302 | -0.2515 | 0.798936 | -0.92245 | 0.36415 | -0.72109 | -1.08825 | -1.38178 | -1.50693 | -1.26005 | 0.358402 | 1.077302 | 0.768226 | -0.96513 |
| 3553 | -0.07917 | 0.488793 | 0.013192 | -0.07287 | -0.36845 | -0.05426 | -0.49674 | -0.79903 | -0.89171 | -0.59035 | -0.38956 | -0.07917 | 0.082963 | 0.06389 |
| 3554 | -1.50762 | 1.341291 | -1.72667 | 1.53847 | -2.24611 | 1.712552 | 0.396624 | -0.0122 | -0.02534 | 0.534311 | -2.215 | -1.50762 | -1.83492 | 1.582468 |
| 3565 | -0.48415 | 0.709823 | -1.04562 | 0.840196 | -1.08296 | 1.252776 | 0.394471 | 0.180251 | 0.040538 | 0.425113 | -1.02917 | -0.48415 | -1.22198 | 0.561522 |
| 3569 | 0.42481 | -0.5201 | 0.458951 | 0.266157 | 0.035762 | -0.49286 | 0.78211 | 0.880888 | 0.872448 | 0.745122 | 0.017211 | 0.42481 | 0.505429 | -0.39975 |
| 3605 | -0.46208 | 0.839679 | -0.33435 | 0.764058 | -0.75498 | 0.229651 | 1.223228 | 0.725532 | 0.430762 | 0.848291 | -0.71301 | -0.46208 | -0.27322 | 0.461696 |
| 3612 | -0.6082 | 0.908599 | -0.70779 | 0.50554 | -0.79892 | 0.692674 | 0.587931 | 0.201594 | -0.00151 | 0.377795 | -0.71528 | -0.6082 | -0.70287 | 0.642729 |
| 3625 | -0.23603 | 0.386193 | -0.61281 | 1.149373 | -1.16021 | 0.755326 | 0.844922 | 0.607631 | 0.480738 | 0.834865 | -1.18194 | -0.23603 | -0.67731 | 0.292149 |
| 3630 | -0.39647 | 0.279507 | -0.41422 | 0.459514 | -0.50861 | 0.493299 | -0.26775 | -0.13586 | -0.05116 | -0.00315 | -0.55829 | -0.39647 | -0.42381 | 0.326578 |
| 3644 | -0.40244 | -0.27514 | -0.36673 | 1.637357 | -0.98631 | 0.339337 | 2.20094 | 2.198308 | 2.127989 | 2.179821 | -1.02228 | -0.40244 | -0.32056 | 0.388215 |
| 3653 | 0.813681 | -0.48764 | 0.363971 | -0.42867 | 0.031892 | -0.1574 | -1.56418 | -1.5981 | -1.4962 | -1.39122 | -0.0692 | 0.813681 | 0.323182 | -0.73058 |
| 3699 | 1.60037 | -1.37667 | 1.909556 | -1.66637 | 1.418188 | -1.97826 | -1.4382 | -1.2142 | -1.03068 | -1.38029 | 1.275491 | 1.60037 | 1.873242 | -1.63862 |
| 3720 | -0.50622 | 0.268098 | -0.37428 | 1.310077 | -1.11498 | 0.334744 | 1.066737 | 0.893244 | 0.884171 | 1.090863 | -1.26848 | -0.50622 | -0.30164 | 0.463038 |
| 3751 | 1.178099 | -0.92739 | 0.803254 | -0.50415 | 0.372831 | -0.58247 | -1.45256 | -1.27418 | -1.12645 | -1.18889 | 0.229038 | 1.178099 | 0.768827 | -1.12738 |
| 3757 | 0.332363 | -0.21516 | 1.022355 | -1.72935 | 0.86921 | -1.35534 | -1.73072 | -1.70803 | -1.54639 | -1.71625 | 0.952916 | 0.332363 | 1.081661 | -0.38939 |
| 3810 | -0.44478 | 0.674868 | -0.16813 | 0.244594 | -0.35987 | -0.02136 | 0.486355 | 0.139605 | 0.00735 | 0.210641 | -0.30238 | -0.44478 | -0.07092 | 0.44997 |

| | | | | | | | | | | | | | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 3828 | 1.31647 | -1.01246 | 1.118415 | -0.31434 | 0.101202 | -0.95594 | -1.10225 | -1.11238 | -0.98714 | -0.97301 | -0.09598 | 1.31647 | 1.094675 | -1.30945 |
| 3834 | -0.69409 | 0.489228 | -1.05641 | 1.377192 | -1.27419 | 1.18266 | 0.90235 | 0.93685 | 0.892261 | 1.138588 | -1.27942 | -0.69409 | -1.15153 | 0.748564 |

Lampiran 10. Normalisasi Data *Testing*

| <i>File</i> | <i>Contrast</i> | <i>Corelation</i> | <i>Dissimilarity</i> | <i>Energy</i> | <i>Entropy</i> | <i>Homogeneity</i> | <i>Max.Probability</i> | <i>Sum of Squares</i> | <i>Sum Average</i> | <i>Sum Variance</i> | <i>Sum Entropy</i> | <i>Diff. Variance</i> | <i>Diff. Entropy</i> | <i>IDM</i> |
|-------------|-----------------|-------------------|----------------------|---------------|----------------|--------------------|------------------------|-----------------------|--------------------|---------------------|--------------------|-----------------------|----------------------|------------|
| 2823 | -1.72583 | 1.066696 | -1.54148 | 0.870214 | -0.90111 | 1.425612 | 0.794363 | 0.926289 | 1.10669 | 0.96073 | -0.79683 | -1.72583 | -1.51049 | 1.690995 |
| 2835 | -1.62774 | 1.165474 | -1.42084 | 0.891236 | -0.684 | 1.289312 | 0.954503 | 1.177736 | 1.208466 | 1.10014 | -0.49839 | -1.62774 | -1.38266 | 1.588205 |
| 2842 | 0.940394 | -1.75653 | 1.213515 | -1.01498 | 1.206716 | -1.29333 | -0.45698 | 0.251533 | 0.672399 | -0.20697 | 1.168753 | 0.940394 | 1.240207 | -0.99271 |
| 2847 | 0.070336 | 0.05587 | 0.57093 | -1.16443 | 1.028592 | -0.72024 | -1.45967 | -1.47011 | -1.40133 | -1.4815 | 1.040123 | 0.070336 | 0.671053 | -0.20393 |
| 2852 | -0.87512 | 0.852837 | -0.45573 | -0.2589 | 0.468701 | 0.248298 | 0.387977 | 0.403698 | 0.316735 | 0.142409 | 0.697724 | -0.87512 | -0.34452 | 0.798366 |
| 2854 | -0.42074 | 0.588313 | -0.11351 | -0.31357 | 0.068297 | -0.04898 | -0.44411 | -0.72017 | -0.7795 | -0.60761 | 0.101828 | -0.42074 | -0.00408 | 0.384776 |
| 2861 | -0.00639 | -0.1723 | -0.61207 | -0.20076 | 0.315619 | 0.882473 | 0.007745 | 0.368954 | 0.463189 | 0.15734 | 0.424013 | -0.00639 | -0.74683 | 0.098312 |
| 2921 | 1.014455 | -0.39201 | 1.230749 | -1.12527 | 1.385706 | -1.26555 | -0.39985 | -0.47404 | -0.63863 | -0.73477 | 1.352487 | 1.014455 | 1.237826 | -1.08146 |
| 3249 | 1.442145 | -1.2088 | 1.873334 | -1.74831 | 1.392738 | -2.00788 | -2.43338 | -2.5828 | -2.41577 | -2.47062 | 1.352796 | 1.442145 | 1.817147 | -1.54076 |
| 3482 | -1.66978 | 1.238531 | -1.41961 | 0.998358 | -0.92573 | 1.245547 | 0.892539 | 0.935084 | 0.972802 | 0.992867 | -0.81174 | -1.66978 | -1.35826 | 1.641702 |
| 3537 | -1.06861 | 0.998851 | -0.665 | 0.370551 | -0.07087 | 0.404313 | 1.0052 | 0.912819 | 0.776599 | 0.743311 | 0.061194 | -1.06861 | -0.5319 | 1.048118 |
| 3606 | 1.689017 | -2.70025 | 1.593896 | -2.28612 | 2.57128 | -1.50384 | -1.61055 | -0.358 | 0.201733 | -1.09461 | 2.531562 | 1.689017 | 1.535538 | -1.65669 |
| 3001 | -1.37353 | 1.269904 | -1.6855 | 1.283455 | -1.63598 | 1.772269 | 0.648306 | 0.429119 | 0.329301 | 0.809064 | -1.55435 | -1.37353 | -1.80563 | 1.434331 |
| 3100 | -0.48346 | 0.298363 | -0.83119 | 1.810651 | -1.48968 | 1.035106 | 1.730659 | 1.590992 | 1.49792 | 1.793691 | -1.6348 | -0.48346 | -0.95387 | 0.479055 |
| 3144 | 0.840978 | -0.80356 | 0.712496 | -0.18917 | 0.180808 | -0.62235 | -0.57045 | -0.48584 | -0.35609 | -0.44639 | 0.073252 | 0.840978 | 0.689494 | -0.84 |
| 3196 | 0.791603 | -0.54855 | 0.508149 | 0.636751 | -0.22657 | -0.36749 | 0.803617 | 0.912585 | 0.796367 | 0.852891 | -0.3634 | 0.791603 | 0.477098 | -0.73816 |
| 3321 | 0.1871 | 0.149053 | 0.322267 | -0.2306 | -0.17671 | -0.36559 | -0.80865 | -1.15082 | -1.21269 | -0.87587 | -0.2151 | 0.1871 | 0.370331 | -0.22622 |
| 3398 | 0.118376 | -0.01442 | -0.40649 | 0.556558 | -0.7777 | 0.584117 | -0.09486 | -0.28555 | -0.27187 | -0.00892 | -0.83958 | 0.118376 | -0.47803 | 0.014164 |
| 3455 | -0.27996 | 0.393021 | -0.64038 | 1.041537 | -1.20564 | 0.733735 | 0.715902 | 0.466152 | 0.359503 | 0.743234 | -1.2372 | -0.27996 | -0.66477 | 0.396661 |

| | | | | | | | | | | | | | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 3477 | 0.156408 | 0.546772 | -0.18245 | -0.21207 | -0.19795 | 0.274455 | -0.2731 | -0.79466 | -1.13083 | -0.55455 | -0.17381 | 0.156408 | -0.19227 | -0.04061 |
| 3552 | 1.006449 | -0.92619 | 0.62017 | 0.522868 | -0.08445 | -0.47893 | 0.987497 | 1.102283 | 1.058411 | 0.949321 | -0.20553 | 1.006449 | 0.571248 | -0.89598 |
| 3576 | 0.600111 | -0.15525 | 0.401051 | 0.713761 | -0.60536 | -0.21773 | 0.870007 | 0.539499 | 0.335988 | 0.681276 | -0.77929 | 0.600111 | 0.353855 | -0.63532 |
| 3681 | -0.13317 | 0.685404 | 0.145002 | -0.67348 | 0.163814 | -0.33126 | -0.35639 | -0.83782 | -1.11613 | -0.71415 | 0.268547 | -0.13317 | 0.23729 | 0.137982 |
| 3823 | 0.806949 | -0.63122 | 0.782663 | -0.27827 | 0.199485 | -0.67207 | -0.89033 | -0.85693 | -0.77326 | -0.73033 | 0.037743 | 0.806949 | 0.772214 | -0.86083 |

Lampiran 11. Pusat dan Jarak dengan 10 *Cluster*

| | <i>Cluster 1</i> | <i>Cluster 2</i> | <i>Cluster 3</i> | <i>Cluster 4</i> | <i>Cluster 5</i> | <i>Cluster 6</i> | <i>Cluster 7</i> | <i>Cluster 8</i> | <i>Cluster 9</i> | <i>Cluster 10</i> |
|----------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| x_1 | -1.545343 | -0.7209296 | 1.24954234 | 1.1597884 | -0.5360865 | -0.2525345 | 0.2041852 | -1.68117955 | 0.71383878 | -0.9960536 |
| x_2 | 1.39523698 | 0.73720266 | -0.9497759 | -0.688754 | 0.36073915 | 0.41066609 | -0.4097969 | 1.467222483 | -1.7655449 | 0.9162274 |
| x_3 | -1.3103239 | -0.8519429 | 0.90578897 | 1.6160892 | -0.669388 | -0.1287748 | -0.0019188 | -1.91267421 | 1.10114581 | -0.8164967 |
| x_4 | -0.1557797 | 0.63678975 | -0.4372624 | -2.013009 | 1.20686887 | -0.2658143 | 0.4487287 | 1.769746355 | -0.263329 | 0.2457075 |
| x_5 | -0.1456944 | -0.8523879 | 0.34312379 | 1.8359678 | -0.951614 | 0.18543427 | -0.3258524 | -2.1404538 | 0.93512487 | -0.1344535 |
| x_6 | 1.11482012 | 0.86942701 | -0.6996936 | -1.742091 | 0.70024977 | 0.05391465 | 0.1100393 | 1.914335657 | -1.2051468 | 0.6847252 |
| x_7 | -0.2885638 | 0.20723135 | -0.7956223 | -1.870203 | 1.26537227 | -0.0839765 | 0.5368333 | 0.969468489 | 0.40760724 | 0.6219265 |
| x_8 | -0.291677 | 0.03908386 | -0.7748361 | -1.727572 | 1.11268291 | -0.158745 | 0.593443 | 0.595635847 | 1.23587139 | 0.4961746 |
| x_9 | -0.2909731 | 0.00010947 | -0.6992085 | -1.675176 | 1.02052904 | -0.210735 | 0.6417656 | 0.50686252 | 1.43158518 | 0.4114753 |
| x_{10} | -0.280571 | 0.23258671 | -0.7402514 | -1.896814 | 1.21902009 | -0.197652 | 0.5910812 | 1.053148997 | 0.79991197 | 0.4337571 |
| x_{11} | 0.11383081 | -0.8112696 | 0.19399422 | 1.8207255 | -0.9713691 | 0.2558613 | -0.3924906 | -2.07604833 | 0.8310871 | 0.0187921 |
| x_{12} | -1.545343 | -0.7209296 | 1.24954234 | 1.1597884 | -0.5360865 | -0.2525345 | 0.2041852 | -1.68117955 | 0.71383878 | -0.9960536 |
| x_{13} | -1.2692399 | -0.8720631 | 0.85966822 | 1.6022574 | -0.677069 | -0.0689962 | -0.018077 | -2.07543534 | 1.14676568 | -0.7544724 |
| x_{14} | 1.54205925 | 0.74727039 | -1.2056579 | -1.242612 | 0.55800758 | 0.24488527 | -0.1874473 | 1.738512295 | -0.7961995 | 0.9813817 |
| Jarak | 3.804 | 3.407 | 0.667 | 0 | 2.677 | 2.178 | 3.531 | 0.354 | 2.296 | 2.105 |

Lampiran 12. Script m-file *rbfDesign*

```
function H = rbfDesign(X, C, R, options)
% H = rbfDesign(X, C, R, options)
%
% Gets the design matrix from the input data, centre positions
% and radii factors.
%
% Input
% X Input training data (n-by-p)
% C List of centres (n-by-m)
% R Scale factors: scalar, n-vector, or n-by-n matrix
% opt Specifying basis function type ('g' for Gaussian,
% 'c' for Cauchy) and whether bias unit is required
% (if yes then 'b').
%
% Output
% H Design matrix (p-by-m)
% default function type
% 'g' = gaussian (0)
% 'c' = cauchy (1)
% 'm' = multiquadric (2)
% 'i' = inverse multiquadric (3)
type = 0;
% default bias
bias = 0;
% process options
if nargin > 3
    for option = options
        if option == 'g'
            type = 0;
        elseif option == 'c'
            type = 1;
        elseif option == 'm'
            type = 2;
        elseif option == 'i'
```

```

        type = 3;
    elseif option == 'b'
        bias = 1;
    else
        error('rbfDesign: illegal option')
    end
end
end
% preliminary sizing
[n, p] = size(X);
[n1, m] = size(C);
if n ~= n1
    error('rbfDesign: mismatched X, C')
end
[rr, rc] = size(R);
% determine scaling type
if rr == 1 & rc == 1
    SCALING_TYPE = 1; % same radius for each centre
elseif rr == 1
    if rc == n
        SCALING_TYPE = 2; % same diagonal metric for each centre
        R = R';
    elseif rc == m
        SCALING_TYPE = 4; % different radius for each centre
        R = R';
    else
        error('rbfDesign: mismatched C and row vector R')
    end
elseif rc == 1
    if rr == n
        SCALING_TYPE = 2; % same diagonal metric for each centre
    elseif rr == m
        SCALING_TYPE = 4; % different radius for each centre
    else
        error('rbfDesign: mismatched C and row vector R')
    end
elseif rr == n
    if rc == n

```

```

        SCALING_TYPE = 3; % same metric for each centre
        IR = inv(R);
    elseif rc == m
        SCALING_TYPE = 5; % different diagonal metric for each
centre
    else
        error('rbfDesign: mismatched C and matrix R')
    end
elseif rc == n
    if rr == m
        SCALING_TYPE = 5; % different diagonal metric for each
centre
        R = R';
    else
        error('rbfDesign: mismatched C and matrix R')
    end
else
    error('rbfDesign: wrong sized R')
end
% start constructing H
H = zeros(p, m);
for j = 1:m
    % get p difference vektors for this centre
    D = X - dupCol(C(:,j),p);
    % do metric calculation
    if SCALING_TYPE == 1 % same radius for each centre
        s = diagProduct(D',D) / R^2;
    elseif SCALING_TYPE == 2 % same diagonal metric for each centre
        DR = D ./ dupCol(R, p);
        s = diagProduct(DR',DR);
    elseif SCALING_TYPE == 3 % same metric for each centre
        DR = IR * D;
        s = diagProduct(DR',DR);
    elseif SCALING_TYPE == 4 % different radius for each centre
        s = diagProduct(D',D) / R(j)^2;
    else % different diagonal metric for each centre
        DR = D ./ dupCol(R(:,j), p);
        s = diagProduct(DR',DR);
    end
end

```

```

end
% apply basis function
if type == 0 % Gaussian (default)
    h = exp(-s);
elseif type == 1 % Cauchy
    h = 1 ./ (s + 1);
elseif type == 2 % multiquadric
    h = sqrt(s + 1);
elseif type == 3 % inverse multiquadric
    h = 1 ./ sqrt(s + 1);
end
% insert result in H
H(:, j) = h;
end
% add bias unit
if bias
    H = [H ones(p, 1)];
end
function M = dupCol(v,n)
% M = dupCol(v,n)
% Duplicates v, a column vector, n times. Returns the
% result as matrix M with n columns, each one a copy of v
% Inputs
%   v   a column vector (m-by-1)
%   n   a positive integer
% Output
%   M   a matrix (m-by-n) matrix
[~,c] = size(v);
if c~=1
    error('dupCol: input vector must be column')
end
M = v(:, ones(1,n));
function d = diagProduct(X,Y)
% d = diagProduct(X,Y)
% Output the diagonal of the product of X and Y.
% Faster than diag(X*Y).
% Input
%   X   matrix (m-by-n)

```

```

% Y matrix (n-by-m)
% Output
% d vector (m-by-1)
[m,n]=size(X);
[p,q]=size(Y);
if m~=q || n~=p
    error('diagProduct: bad dimensions')
end
% P - a column vector of the rows of X
P = X';
P = P(:);
% Q - a column vector of the columns of Y
Q = Y(:);
% Z - an [n,m] matrix containing the components of P.*Q
Z = zeros(n,m);
Z(:) = P.*Q;
% d - the answer is the sum of the columns of Z
d = colSum(Z)';
function s = colSum(X)
    % s = colSum(X)
    % Output a row vector whose elements are the sums of
    % the columns of X.
    % Designed to get round the feature of the standard
    % routine (sum) of summing row vectors to a scalar.
    % If colSum is handed a row vector, the same vector is
    % given back.
    % Input
    % X matrix(m-by-n)
    % Output
    % s vector(1-by-n)
    [m,~] = size(X);
    if m > 1
        s = sum(X);
    else
        s = X;
    end
end

```


Lampiran 13. Script m-file Global ridge-Regression

```
function [l, e, L, E] = globalRidge(H, Y, l)
% [l, e, L, E] = globalRidge(H, Y, l, options, U)
%
% Calculates the best global ridge regression parameter (l) and
% the corresponding predicted error (e) using one of a number of
% prediction methods (UEV, FPE, GCV or BIC). Needs a design (H),
% the training set outputs (Y), and an initial guess (l).
% The termination criterion, maximum number of iterations,
% verbose output and the use of a non-standard weight penalty
% are controlled from the options string. The non-standard
% metric, if used, is given in the fifth argument (U). L and E
% return the evolution of the regularisation parameter and error
% values from the initial to final iterations. If the input l is
% a vector (more than one guess), a corresponding number of
% answers will be returned, e will also be a vector and L and E
% will be matrices (with each row corresponding to the iterations
% resulting after each guess).
%
% Inputs
%
% H design matrix (p-by-m)
% Y input training data (p-by-k)
% l initial guess(es) at lambda (vector length q)(default 0.01)
% options options (string)
% U optional non-standard smoothing metric (m-by-m)
% Outputs
%
% l final estimate(s) for lambda (1-by-q)
% e final estimate(s) for model selection score (1-by-q)
% L list(s) of running lambda values (n-by-q)
% E list(s) of running error values (n-by-q)
%
% The various model selection criteria used are:
%
```

```

%UEV Unbiased Estimate of Variance
% FPE Final Prediction Error
% GCV Generalised Cross Validation
% BIC Bayesian Information Criterion
%
% specified in options by, e.g. 'FPE'.
% defaults
Verbose = 0;
Flops = 0;
Model = 'g';
Threshold = 1000;
Hard = 100;
Standard = 1;
% process options
if nargin > 3
    % initialise
    i = 1;
    [arg, i] = getNextArg(options, i);
    % scan through arguments
    while ~isempty(arg)
        if strcmp(arg, '-v')
            % verbose output required
            Verbose = 1;
        elseif strcmp(arg, '-V')
            % verbose output required with compute cost reporting
            Verbose = 1;
            Flops = 1;
        elseif strcmp(arg, '-U')
            % non-standard penalty matrix
            Standard = 0;
        elseif strcmp(arg, '-h')
            % hard limit to specify
            [arg, i] = getNextArg(options, i);
            hl = str2double(arg);
            if ~isempty(hl)
                if hl > 1
                    Hard = round(hl);
                else

```

```

        fprintf('globalRidge: hard limit should be
positive\n')
        error('globalRidge: bad value in -h option')
    end
else
    fprintf('globalRidge: value needed for hard
limit\n')
    error('globalRidge: missing value in -h option')
end
elseif strcmp(arg, '-t')
    % termination criterion to specify
    [arg, i] = getNextArg(options, i);
    te = str2double(arg);
    if ~isempty(te)
        if te >= 1
            Threshold = round(te);
        elseif te > 0
            Threshold = te;
        else
            fprintf('globalRidge: threshold should be
positive\n')
            error('globalRidge: bad value in -t option')
        end
    else
        fprintf('globalRidge: value needed for
threshold\n')
        error('globalRidge: missing value in -t option')
    end
elseif strcmpi(arg, 'uev')
    % use UEV (unbiased expected variance)
    Model = 'u';
elseif strcmpi(arg, 'fpe')
    % use FPE (final prediction error)
    Model = 'f';
elseif strcmpi(arg, 'gcv')
    % use GCV (generalised cross-validation)
    Model = 'g';
elseif strcmpi(arg, 'bic')

```

```

        % use BIC (Bayesian information criterion)
        Model = 'b';
    else
        fprintf('%s\n', options)
        for k = 1:i-length(arg)-1;
            fprintf(' ');
        end
        for k = 1:length(arg);
            fprintf('^');
        end
        fprintf('\n')
        error('globalRidge: unrecognised option')
    end
    % get next argument
    [arg, i] = getNextArg(options, i);
end

if nargin < 3
    l = 0.01;
    % default initial guess
end

if ~Standard
    if nargin < 5
        fprintf('globalRidge: specify non-standard penalty
matrix\n')
        error('globalRidge: -U option implies fifth argument')
    end
else
    U = 1;
end

% initialise
[~, m] = size(H);
[p, ~] = size(Y);
[q1, q2] = size(l);
if q1 == 1
    q = q2;
elseif q2 == 1
    q = q1;
end

```

```

else
    error('globalRidge: list of guesses should be vector, not
matrix')
end
[u1, u2] = size(U);
if u1 == m && u2 == m
    % transform the problem - equivalent to U'*U metric
    H = H /U;
elseif u1 ~= 1 || u2 ~= 1
    estr = sprintf('%d-by-%d', m, m);
    error(['globalRidge: U should be 1-by-1 or ' estr])
end
HH = H' * H;
HY = H' * Y;
e = zeros(1, q);
if nargout > 2
    L = zeros(Hard+1, q);
end
if nargout > 3
    E = zeros(Hard+1, q);
end
maxcount = 1;
if Verbose
    fprintf('\nglobalRidge\n')
end
if Flops
    flops(0)
end
% loop through each guess
for i = 1:q
    if Verbose
        fprintf('pass ')
        fprintf(' lambda ')
        if Model == 'u'
            fprintf(' UEV ')
        elseif Model == 'f'
            fprintf(' FPE ')
        elseif Model == 'g'

```

```

        fprintf(' GCV ')
    else
        fprintf(' BIC ')
    end
    fprintf(' change ')
    if Flops
        fprintf(' flops\n')
    else
        fprintf('\n')
    end
end
notTooMany = 1;
notDone = 1;
count = 0;
A = inv(HH + l(i) * eye(m));
g = m - l(i) * trace(A);
PY = Y - H * ((HH+l(i)*eye(m))\ HY);
YPY = trace(PY'* PY);
if Model == 'u'
    psi = p / (p - g);
elseif Model == 'f'
    psi = (p + g) / (p - g);
elseif Model == 'g'
    psi = p^2 / (p - g)^2;
else
    psi = (p + (log(p) - 1) * g) / (p - g);
end
e(i) = psi * YPY / p;
if Verbose
    fprintf('%4d %9.3e %9.3e - ', count, l(i), e(i))
    if Flops
        fprintf('%9d\n', flops)
    else
        fprintf('\n')
    end
end
end
if nargout > 2 L(1,i) = l(i);
end

```

```

if nargout > 3 E(1,i) = e(i);
end
% re-estimate til convergence or exhaustion of iterations
while notDone && notTooMany
% next iteration
count = count + 1;
% get some needed quantities
A2 = A^2;
A3 = A * A2;
% re-estimate lambda
if Model == 'u'
eta = 1 / (2 * (p - g));
elseif Model == 'f'
eta = p / ((p - g) * (p + g));
elseif Model == 'g'
eta = 1 / (p - g);
else
eta = p * log(p) / (2 * (p - g) * (p + (log(p) - 1) * g));
end
nl = eta * YPY * trace(A - l(i) * A2) / trace(HY' * A3 * HY);
% store result
if nargout > 2
L(count+1,i) = nl;
end
% calculate new model selection score
A = inv(HH + nl * eye(m));
g = m - nl * trace(A);
PY = Y - H * ((HH+nl*eye(m))\ HY);
YPY = trace(PY'* PY);
if Model == 'u'
psi = p / (p - g);
elseif Model == 'f'
psi = (p + g) / (p - g);
elseif Model == 'g'
psi = p^2 / (p - g)^2;
else
psi = (p + (log(p) - 1) * g) / (p - g);
end

```

```

ns = psi * YPY / p;
% store result
if nargout > 3
    E(count+1,i) = ns;
end
% what's the change
if Threshold >= 1
    % interpret threshold as one part in many
    change = round(abs(e(i) / (e(i) - ns)));
else
    % interpret threshold as absolute difference
    change = abs(e(i) - ns);
end
% time to go home?
if count >= Hard
    notTooMany = 0;
elseif Threshold >= 1
    % interpret threshold as one part in many
    if change > Threshold
        notDone = 0;
    end
else
    % interpret threshold as absolute difference
    if change < Threshold
        notDone = 0;
    end
end
% get ready for next iteration (or end)
l(i) = nl;
e(i) = ns;
if Verbose
    fprintf('%4d %9.3e %9.3e ', count, l(i), e(i))
    if Threshold >=1
        fprintf('%7d ', change)
    else
        fprintf('%7.1e ', change)
    end
    if Flops

```



```

        fprintf('%9d\n', flops)
    else
        fprintf('\n')
    end
end
end
if Verbose
    if ~notTooMany
        fprintf('hard limit reached\n')
    else
        if Threshold >=1
            fprintf('relative ')
        else
            fprintf('absolute ')
        end
        fprintf('threshold in ')
    end
end
end
end

```

Lampiran 14. Hasil Fungsi Aktivasi *Gaussian*

| Data Training | | | | | | | | | | |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|
| Nama | φ_1 | φ_2 | φ_3 | φ_4 | φ_5 | φ_6 | φ_7 | φ_8 | φ_9 | φ_{10} |
| 2731.jpg | 0.294981 | 0.343061 | 8.83E-16 | 0 | 0.133392 | 0.538511 | 0.652512 | 1.82E-161 | 0.124496 | 0.171476 |
| 2765.jpg | 0.880387 | 0.888133 | 1.14E-33 | 0 | 0.318673 | 0.291747 | 0.417222 | 8.21E-55 | 0.00066 | 0.804207 |
| 2801.jpg | 0.063095 | 0.024866 | 4.39E-13 | 0 | 0.00014 | 0.017924 | 0.055897 | 0 | 0.001001 | 7.90E-05 |
| 2810.jpg | 7.85E-05 | 9.97E-06 | 1.10E-45 | 0 | 3.54E-10 | 1.73E-08 | 0.000246 | 0 | 8.79E-07 | 1.68E-13 |
| 2811.jpg | 0.774784 | 0.783653 | 3.53E-35 | 0 | 0.352703 | 0.269558 | 0.419307 | 2.17E-61 | 0.000977 | 0.861402 |
| 2815.jpg | 0.58357 | 0.589289 | 5.91E-29 | 0 | 0.325219 | 0.380266 | 0.569678 | 2.02E-96 | 0.014618 | 0.719566 |
| 2820.jpg | 0.002007 | 0.000909 | 1.18E-15 | 0 | 1.30E-06 | 6.96E-05 | 0.011571 | 0 | 0.000837 | 1.14E-08 |
| 2827.jpg | 0.006825 | 0.000981 | 3.57E-33 | 0 | 2.47E-07 | 5.32E-05 | 0.002972 | 0 | 3.23E-06 | 2.15E-08 |
| 2829.jpg | 0.404586 | 0.719779 | 1.10E-37 | 0 | 0.944374 | 0.097599 | 0.601508 | 7.89E-48 | 0.003415 | 0.508829 |
| 2834.jpg | 0.096328 | 0.103561 | 0.018672 | 0 | 0.005303 | 0.166649 | 0.294881 | 3.18E-267 | 0.037144 | 0.002114 |
| 2839.jpg | 0.777087 | 0.761599 | 1.19E-35 | 0 | 0.375914 | 0.268051 | 0.438206 | 4.78E-63 | 0.001555 | 0.949188 |
| 2841.jpg | 0.385159 | 0.709352 | 3.18E-35 | 0 | 0.920234 | 0.11998 | 0.64313 | 1.97E-54 | 0.004769 | 0.494208 |
| 2844.jpg | 0.014006 | 0.002267 | 2.09E-30 | 0 | 1.08E-06 | 0.000232 | 0.005396 | 0 | 7.12E-06 | 2.04E-07 |
| 2845.jpg | 0.771581 | 0.299021 | 2.06E-62 | 0 | 0.043057 | 0.014493 | 0.083101 | 7.22E-78 | 8.96E-06 | 0.161367 |
| 2871.jpg | 0.40983 | 0.438267 | 5.63E-21 | 0 | 0.203833 | 0.523529 | 0.639664 | 9.71E-135 | 0.05879 | 0.367824 |
| 2931.jpg | 0.001262 | 0.000529 | 2.97E-18 | 0 | 6.14E-07 | 2.64E-05 | 0.0086 | 0 | 0.000869 | 3.23E-09 |
| 2939.jpg | 0.990676 | 0.636464 | 1.54E-40 | 0 | 0.091767 | 0.138552 | 0.202199 | 1.25E-68 | 6.53E-05 | 0.361323 |
| 3035.jpg | 0.00649 | 0.008862 | 3.56E-46 | 0 | 0.004569 | 0.000122 | 0.115039 | 3.7123e-319 | 0.150666 | 2.96E-05 |
| 3119.jpg | 0.355435 | 0.544727 | 3.28E-39 | 0 | 0.694136 | 0.067548 | 0.564081 | 3.28E-65 | 0.00718 | 0.364072 |
| 3125.jpg | 0.548977 | 0.727889 | 4.87E-17 | 0 | 0.26482 | 0.70111 | 0.732439 | 1.65E-101 | 0.017159 | 0.40912 |

| | | | | | | | | | | |
|----------|----------|----------|----------|---|----------|----------|----------|-----------|----------|----------|
| 3161.jpg | 0.10613 | 0.164096 | 8.88E-15 | 0 | 0.084661 | 0.139884 | 0.653767 | 1.28E-204 | 0.633773 | 0.024047 |
| 3218.jpg | 0.003572 | 0.005003 | 4.46E-16 | 0 | 0.000329 | 0.000491 | 0.102588 | 0 | 0.334753 | 1.82E-06 |
| 3234.jpg | 0.856452 | 0.618142 | 5.42E-27 | 0 | 0.070111 | 0.381176 | 0.290662 | 2.10E-100 | 0.000465 | 0.274182 |
| 3296.jpg | 0.570176 | 0.699171 | 2.70E-39 | 0 | 0.635297 | 0.141737 | 0.497115 | 2.81E-55 | 0.002651 | 0.817554 |
| 3302.jpg | 0.236663 | 0.408066 | 1.08E-50 | 0 | 0.768639 | 0.014664 | 0.402196 | 3.45E-54 | 0.001845 | 0.178293 |
| 3303.jpg | 0.607915 | 0.925208 | 7.90E-25 | 0 | 0.586585 | 0.47207 | 0.73301 | 4.55E-65 | 0.007431 | 0.755181 |
| 3321.jpg | 0.023371 | 0.04536 | 0.001135 | 0 | 0.005271 | 0.020927 | 0.332729 | 1.50E-303 | 0.225164 | 0.000194 |
| 3344.jpg | 0.315292 | 0.335658 | 9.65E-22 | 0 | 0.166458 | 0.360922 | 0.608416 | 6.83E-151 | 0.104604 | 0.228338 |
| 3354.jpg | 0.723557 | 0.896727 | 1.52E-41 | 0 | 0.51395 | 0.10336 | 0.386052 | 1.70E-29 | 0.000268 | 0.630223 |
| 3425.jpg | 0.087416 | 0.165108 | 0.016978 | 0 | 0.030546 | 0.188106 | 0.578917 | 6.97E-225 | 0.161648 | 0.005621 |
| 3468.jpg | 0.889 | 0.641882 | 5.93E-47 | 0 | 0.089131 | 0.047211 | 0.156709 | 1.54E-46 | 9.99E-06 | 0.189718 |
| 3469.jpg | 0.161143 | 0.330538 | 2.75E-18 | 0 | 0.31129 | 0.161722 | 0.888621 | 2.83E-142 | 0.232361 | 0.080993 |
| 3471.jpg | 0.003586 | 0.003493 | 2.01E-10 | 0 | 4.57E-05 | 0.000417 | 0.054518 | 0 | 0.028476 | 3.64E-07 |
| 3507.jpg | 0.634993 | 0.70576 | 2.01E-17 | 0 | 0.176906 | 0.874124 | 0.58625 | 1.07E-107 | 0.007422 | 0.429323 |
| 3536.jpg | 0.57373 | 0.589871 | 4.44E-17 | 0 | 0.128815 | 0.851677 | 0.530638 | 5.64E-123 | 0.009305 | 0.328013 |
| 3572.jpg | 0.051784 | 0.046284 | 1.71E-14 | 0 | 0.006281 | 0.045275 | 0.268976 | 1.24E-300 | 0.39982 | 0.001704 |
| 3590.jpg | 0.401299 | 0.686515 | 8.88E-19 | 0 | 0.510827 | 0.522223 | 0.924738 | 2.09E-97 | 0.052649 | 0.44053 |
| 3617.jpg | 0.107867 | 0.295666 | 9.82E-29 | 0 | 0.47967 | 0.033336 | 0.740392 | 2.26E-116 | 0.062601 | 0.040323 |
| 3680.jpg | 0.008516 | 0.003924 | 1.97E-12 | 0 | 1.63E-05 | 0.001249 | 0.030853 | 0 | 0.004372 | 9.45E-07 |
| 3688.jpg | 0.267216 | 0.261479 | 2.04E-06 | 0 | 0.02061 | 0.48718 | 0.40859 | 3.45E-199 | 0.019531 | 0.025118 |
| 3691.jpg | 0.640909 | 0.846048 | 8.40E-30 | 0 | 0.599466 | 0.354429 | 0.647837 | 3.85E-63 | 0.006052 | 0.931317 |
| 3724.jpg | 0.336258 | 0.52654 | 2.20E-16 | 0 | 0.328209 | 0.50378 | 0.886562 | 9.31E-123 | 0.095901 | 0.282704 |
| 3736.jpg | 0.725832 | 0.919363 | 1.74E-31 | 0 | 0.546216 | 0.314347 | 0.572814 | 2.09E-53 | 0.002549 | 0.912599 |
| 3777.jpg | 0.50681 | 0.355256 | 2.23E-17 | 0 | 0.041386 | 0.560853 | 0.379434 | 1.06E-162 | 0.010859 | 0.137508 |
| 3801.jpg | 0.43731 | 0.471116 | 8.45E-11 | 0 | 0.062696 | 0.686859 | 0.513137 | 4.27E-148 | 0.010715 | 0.10448 |

| | | | | | | | | | | |
|----------|----------|----------|-----------|---|----------|----------|----------|-----------|----------|----------|
| 2888.jpg | 0.388411 | 0.529339 | 6.74E-10 | 0 | 0.085253 | 0.676488 | 0.561408 | 1.22E-137 | 0.009836 | 0.094716 |
| 2993.jpg | 0.773699 | 0.823877 | 2.49E-34 | 0 | 0.152405 | 0.139828 | 0.284426 | 1.48E-52 | 8.10E-05 | 0.23357 |
| 2994.jpg | 0.504042 | 0.721941 | 1.21E-13 | 0 | 0.22045 | 0.873619 | 0.722863 | 5.17E-109 | 0.015364 | 0.311407 |
| 3007.jpg | 0.023052 | 0.063134 | 4.40E-12 | 0 | 0.028014 | 0.015363 | 0.480527 | 3.60E-257 | 0.420723 | 0.000654 |
| 3081.jpg | 0.037163 | 0.072026 | 0.102871 | 0 | 0.006821 | 0.041595 | 0.354913 | 4.77E-277 | 0.085671 | 0.000405 |
| 3082.jpg | 0.341764 | 0.477932 | 9.13E-10 | 0 | 0.097143 | 0.7245 | 0.608034 | 5.73E-146 | 0.020224 | 0.104154 |
| 3083.jpg | 0.538303 | 0.941254 | 2.19E-30 | 0 | 0.729157 | 0.222975 | 0.643172 | 1.86E-46 | 0.002253 | 0.579826 |
| 3096.jpg | 0.052325 | 0.119416 | 0.000257 | 0 | 0.029264 | 0.081909 | 0.561311 | 1.89E-237 | 0.224333 | 0.002358 |
| 3106.jpg | 0.127649 | 0.115942 | 3.02E-105 | 0 | 0.048733 | 1.23E-05 | 0.020456 | 6.00E-09 | 5.66E-09 | 0.002065 |
| 3126.jpg | 0.20527 | 0.570618 | 1.19E-33 | 0 | 0.793475 | 0.042069 | 0.64105 | 1.52E-59 | 0.003472 | 0.106778 |
| 3127.jpg | 0.289925 | 0.535108 | 7.78E-57 | 0 | 0.660979 | 0.007416 | 0.265804 | 1.42E-16 | 6.04E-05 | 0.123612 |
| 3139.jpg | 0.155117 | 0.298714 | 7.02E-12 | 0 | 0.176368 | 0.284401 | 0.854109 | 2.10E-166 | 0.341711 | 0.056939 |
| 3140.jpg | 0.155927 | 0.163664 | 6.06E-07 | 0 | 0.005088 | 0.127602 | 0.218436 | 2.07E-222 | 0.001754 | 0.002365 |
| 3190.jpg | 0.037714 | 0.07066 | 0.073451 | 0 | 0.007728 | 0.050544 | 0.374568 | 1.68E-280 | 0.136667 | 0.000543 |
| 3231.jpg | 0.172263 | 0.247254 | 0.003825 | 0 | 0.032115 | 0.41466 | 0.543103 | 7.67E-203 | 0.065643 | 0.016568 |
| 3254.jpg | 0.53683 | 0.633113 | 7.28E-15 | 0 | 0.159035 | 0.934854 | 0.619708 | 3.58E-120 | 0.013713 | 0.324326 |
| 3260.jpg | 0.293582 | 0.668397 | 4.47E-15 | 0 | 0.336266 | 0.332442 | 0.806626 | 2.26E-98 | 0.012622 | 0.130281 |
| 3282.jpg | 0.315759 | 0.425927 | 2.36E-70 | 0 | 0.254718 | 0.001484 | 0.112855 | 0.050895 | 1.43E-06 | 0.044719 |
| 3397.jpg | 0.004029 | 0.003329 | 1.30E-08 | 0 | 1.16E-05 | 0.000354 | 0.028786 | 0 | 0.001318 | 1.08E-07 |
| 3411.jpg | 0.740768 | 0.956619 | 9.47E-29 | 0 | 0.425469 | 0.379341 | 0.543572 | 2.66E-56 | 0.001765 | 0.718219 |
| 3414.jpg | 0.288866 | 0.65495 | 1.36E-18 | 0 | 0.578739 | 0.328657 | 0.934156 | 4.00E-94 | 0.034522 | 0.240657 |
| 3418.jpg | 0.18976 | 0.45915 | 1.37E-10 | 0 | 0.16952 | 0.223516 | 0.753653 | 1.35E-130 | 0.022056 | 0.037519 |
| 3434.jpg | 0.239453 | 0.591373 | 4.88E-33 | 0 | 0.921846 | 0.070806 | 0.704668 | 8.22E-64 | 0.00809 | 0.198264 |
| 3467.jpg | 0.003098 | 0.003489 | 8.83E-08 | 0 | 3.09E-05 | 0.000369 | 0.046395 | 0 | 0.010806 | 1.67E-07 |
| 3473.jpg | 0.328478 | 0.568548 | 1.27E-10 | 0 | 0.244943 | 0.689329 | 0.902138 | 6.80E-128 | 0.076852 | 0.185569 |

| | | | | | | | | | | |
|----------|----------|----------|----------|---|----------|----------|----------|-----------|----------|----------|
| 3475.jpg | 0.600897 | 0.882403 | 3.18E-37 | 0 | 0.312189 | 0.081791 | 0.343769 | 1.00E-33 | 0.000106 | 0.224773 |
| 3484.jpg | 0.165518 | 0.435396 | 1.38E-22 | 0 | 0.566797 | 0.120273 | 0.875206 | 1.75E-108 | 0.06562 | 0.100779 |
| 3547.jpg | 0.063467 | 0.064607 | 0.006158 | 0 | 0.001522 | 0.059463 | 0.176697 | 7.81E-295 | 0.007203 | 0.00034 |
| 3553.jpg | 0.398312 | 0.526226 | 1.21E-10 | 0 | 0.077828 | 0.640577 | 0.522341 | 8.12E-137 | 0.006898 | 0.090591 |
| 3554.jpg | 0.358457 | 0.438871 | 8.09E-68 | 0 | 0.13601 | 0.001674 | 0.090636 | 3.69E-06 | 4.55E-07 | 0.02861 |
| 3565.jpg | 0.565497 | 0.942289 | 3.58E-33 | 0 | 0.553052 | 0.144319 | 0.51315 | 1.26E-38 | 0.000607 | 0.407551 |
| 3569.jpg | 0.132807 | 0.282596 | 1.67E-13 | 0 | 0.215294 | 0.208852 | 0.882658 | 2.75E-164 | 0.349622 | 0.051752 |
| 3605.jpg | 0.391571 | 0.748327 | 3.70E-29 | 0 | 0.790488 | 0.214001 | 0.722887 | 8.24E-65 | 0.007934 | 0.475605 |
| 3612.jpg | 0.627457 | 0.968786 | 1.97E-28 | 0 | 0.576914 | 0.329414 | 0.617988 | 2.15E-52 | 0.002168 | 0.675292 |
| 3625.jpg | 0.346899 | 0.790608 | 2.23E-30 | 0 | 0.84351 | 0.122118 | 0.698927 | 1.92E-51 | 0.003604 | 0.288891 |
| 3630.jpg | 0.560112 | 0.866818 | 3.88E-18 | 0 | 0.339191 | 0.624418 | 0.724625 | 1.83E-83 | 0.008275 | 0.4077 |
| 3644.jpg | 0.069228 | 0.175517 | 7.26E-54 | 0 | 0.483322 | 0.002093 | 0.333636 | 1.22E-92 | 0.003326 | 0.016759 |
| 3653.jpg | 0.102534 | 0.110987 | 8.16E-05 | 0 | 0.002935 | 0.080208 | 0.19969 | 1.30E-251 | 0.002834 | 0.000848 |
| 3699.jpg | 0.004751 | 0.003122 | 9.40E-10 | 0 | 1.44E-05 | 0.000598 | 0.032608 | 0 | 0.006153 | 2.58E-07 |
| 3720.jpg | 0.278137 | 0.652808 | 7.73E-34 | 0 | 0.915937 | 0.076751 | 0.671094 | 3.82E-56 | 0.005564 | 0.233046 |
| 3751.jpg | 0.050858 | 0.059818 | 0.080545 | 0 | 0.001654 | 0.044408 | 0.195997 | 2.87E-298 | 0.013087 | 0.000229 |
| 3757.jpg | 0.05347 | 0.028324 | 8.00E-10 | 0 | 0.00021 | 0.020628 | 0.070594 | 0 | 0.001738 | 7.26E-05 |
| 3810.jpg | 0.512893 | 0.779491 | 5.69E-19 | 0 | 0.398842 | 0.700132 | 0.768716 | 1.63E-91 | 0.01696 | 0.525942 |
| 3828.jpg | 0.034995 | 0.051324 | 0.210849 | 0 | 0.001902 | 0.030358 | 0.21311 | 9.79E-305 | 0.022649 | 0.000138 |
| 3834.jpg | 0.357392 | 0.700481 | 1.70E-44 | 0 | 0.854842 | 0.032062 | 0.44814 | 7.73E-28 | 0.000522 | 0.249734 |

| Data Training | | | | | | | | | | |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|
| Nama | φ_1 | φ_2 | φ_3 | φ_4 | φ_5 | φ_6 | φ_7 | φ_8 | φ_9 | φ_{10} |
| 2823.jpg | 0.536648 | 0.53989 | 2.38E-61 | 0 | 0.372788 | 0.01093 | 0.190263 | 2.82E-19 | 3.08E-05 | 0.266702 |
| 2835.jpg | 0.509988 | 0.521614 | 1.01E-59 | 0 | 0.430061 | 0.013838 | 0.217094 | 1.55E-26 | 7.06E-05 | 0.323959 |

| | | | | | | | | | | |
|----------|----------|----------|----------|---|----------|----------|----------|-----------|----------|----------|
| 2842.jpg | 0.027274 | 0.03135 | 2.09E-07 | 0 | 0.002664 | 0.022826 | 0.250744 | 0 | 0.44826 | 0.000238 |
| 2847.jpg | 0.13089 | 0.077259 | 3.80E-09 | 0 | 0.001299 | 0.09872 | 0.135197 | 5.87E-282 | 0.003286 | 0.001176 |
| 2852.jpg | 0.647002 | 0.597229 | 1.61E-25 | 0 | 0.222528 | 0.565257 | 0.530103 | 8.88E-106 | 0.010922 | 0.667368 |
| 2854.jpg | 0.517526 | 0.529747 | 2.37E-13 | 0 | 0.072621 | 0.793214 | 0.475515 | 8.12E-137 | 0.006744 | 0.157122 |
| 2861.jpg | 0.445857 | 0.580989 | 2.18E-17 | 0 | 0.240748 | 0.556693 | 0.738639 | 1.14E-116 | 0.032455 | 0.320416 |
| 2921.jpg | 0.039439 | 0.035462 | 8.71E-05 | 0 | 0.001347 | 0.042661 | 0.186053 | 0 | 0.075611 | 0.000268 |
| 3249.jpg | 0.002111 | 0.000737 | 3.98E-20 | 0 | 3.23E-07 | 2.84E-05 | 0.005286 | 0 | 3.26E-05 | 2.84E-09 |
| 3482.jpg | 0.536213 | 0.571972 | 1.35E-59 | 0 | 0.424927 | 0.013727 | 0.208733 | 5.13E-19 | 4.07E-05 | 0.304663 |
| 3537.jpg | 0.57855 | 0.680124 | 2.05E-36 | 0 | 0.552022 | 0.19931 | 0.518843 | 1.09E-65 | 0.004219 | 0.845435 |
| 3606.jpg | 0.001793 | 0.000763 | 4.40E-21 | 0 | 2.52E-06 | 4.87E-05 | 0.01501 | 0 | 0.00812 | 2.05E-08 |
| 3001.jpg | 0.467859 | 0.578113 | 9.44E-62 | 0 | 0.294507 | 0.006036 | 0.155922 | 9.40E-06 | 4.53E-06 | 0.11413 |
| 3100.jpg | 0.136858 | 0.347059 | 3.98E-54 | 0 | 0.722612 | 0.003873 | 0.334261 | 6.90E-45 | 0.000415 | 0.044404 |
| 3144.jpg | 0.10151 | 0.165436 | 0.105157 | 0 | 0.021413 | 0.216934 | 0.514619 | 4.93E-229 | 0.113341 | 0.005326 |
| 3196.jpg | 0.092633 | 0.244182 | 1.35E-13 | 0 | 0.199574 | 0.112365 | 0.847868 | 1.46E-167 | 0.25265 | 0.023025 |
| 3321.jpg | 0.241597 | 0.296744 | 1.33E-06 | 0 | 0.02323 | 0.38105 | 0.389513 | 2.81E-184 | 0.007537 | 0.017574 |
| 3398.jpg | 0.393133 | 0.753316 | 3.25E-15 | 0 | 0.29007 | 0.440033 | 0.749582 | 2.20E-93 | 0.008608 | 0.180942 |
| 3455.jpg | 0.382271 | 0.839009 | 1.28E-29 | 0 | 0.788138 | 0.143245 | 0.688177 | 6.63E-50 | 0.003051 | 0.312834 |
| 3477.jpg | 0.399502 | 0.508923 | 1.10E-10 | 0 | 0.070543 | 0.622335 | 0.502927 | 1.49E-139 | 0.005475 | 0.087446 |
| 3552.jpg | 0.056888 | 0.152284 | 1.00E-14 | 0 | 0.121616 | 0.051335 | 0.725565 | 3.34E-195 | 0.371246 | 0.007937 |
| 3576.jpg | 0.136599 | 0.370511 | 1.02E-13 | 0 | 0.286179 | 0.177236 | 0.886605 | 1.08E-138 | 0.092087 | 0.046553 |
| 3681.jpg | 0.367076 | 0.359488 | 2.32E-10 | 0 | 0.034038 | 0.626099 | 0.401075 | 2.53E-170 | 0.00783 | 0.058503 |
| 3823.jpg | 0.095772 | 0.136963 | 0.194973 | 0 | 0.010301 | 0.170046 | 0.383197 | 8.99E-244 | 0.045649 | 0.002655 |

Lampiran 15. Script m-file Diagnosa Kanker Otak Menggunakan RBFNN

```
clc;
%Panggil Data
%Data training n=90
D = xlsread('normalisasitraining.xlsx'); %input training
X = D;
T = xlsread('targettraining.xlsx'); %target training
%Data testing n=24
D1 = xlsread('normalisasitesting.xlsx'); %input testing
X1 = D1;
T1 = xlsread('targettesting.xlsx'); %target testing
data1 = xlsread('pusat10.xlsx'); %cluster
M = data1;
sizem = size(M);
data2 = xlsread('jarak10.xlsx'); %spread
S = data2;
disp('=====ProsesTraining=====')
%Aktivasi Fungsi Gaussian (Hidden Layer)
H = rbfDesign(X', M, S, 'b');
L= globalRidge(H, T, 0.05);
%Mencari Bobot Optimal
W = (inv((H'*H)+ L*eye(sizem(1,2)+1)))*H'*T;
%Output
output = H*W;
Y = round(output);
disp('Hasil Klasifikasi Training');
disp(Y)
sizey = size(Y);
%Perhitungan akurasi
hitung = 0;
for i = 1 : sizey(1,1)
    if T(i,1)==Y(i,1)
        hitung = hitung+1;
    end
end
jumlah_klasifikasi_training_yang_benar = sum(hitung);
jumlah = jumlah_klasifikasi_training_yang_benar;
```

```

Akurasi1 = (jumlah/sizey(1,1))*100;
disp('Akurasi Data Training')
disp(Akurasi1)
disp('=====ProsesTesting=====')
%Aktivasi Fungsi Gaussian (Hidden Layer)
H1 = rbfDesign(X1', M, S, 'b');
%output
output1 = H1*W;
Y1 = round(output1);
disp('Hasil Klasifikasi Testing');
disp(Y1)
sizey1 = size(Y1);
%Perhitungan akurasi
hitung1 = 0;
for i = 1 : sizey1(1,1)
    if T1(i,1)==Y1(i,1)
        hitung1 = hitung1+1;
    end
end
jumlah_klasifikasi_testing_yang_benar = sum(hitung1);
jumlah1 = jumlah_klasifikasi_testing_yang_benar;
Akurasi2 = (jumlah1/sizey1(1,1))*100;
disp('Akurasi Data Testing')
disp(Akurasi2)

```


Lampiran 16. Hasil *Output* Diagnosa Kanker Otak

Output Data Training

| Nama | <i>Output</i> |
|----------|---------------|
| 2731.jpg | 0.69296393 |
| 2765.jpg | 0.93917479 |
| 2801.jpg | 0.59801931 |
| 2810.jpg | 0.5494651 |
| 2811.jpg | 1.12308014 |
| 2815.jpg | 1.18046864 |
| 2820.jpg | 0.55043989 |
| 2827.jpg | 0.55860927 |
| 2829.jpg | 0.62397271 |
| 2834.jpg | 0.47726925 |
| 2839.jpg | 1.30574231 |
| 2841.jpg | 0.59066634 |
| 2844.jpg | 0.56772174 |
| 2845.jpg | 1.31185224 |
| 2871.jpg | 0.87004473 |
| 2931.jpg | 0.5503 |
| 2939.jpg | 1.085299 |
| 3035.jpg | 0.62636367 |
| 3119.jpg | 0.64799048 |
| 3125.jpg | 0.45789672 |
| 3161.jpg | 0.79139543 |
| 3218.jpg | 0.74070266 |
| 3234.jpg | 0.87539509 |
| 3296.jpg | 1.10954935 |
| 3302.jpg | 0.64010926 |
| 3303.jpg | 0.57140405 |
| 3321.jpg | 0.5981696 |
| 3344.jpg | 0.75884607 |
| 3354.jpg | 0.51588851 |
| 3425.jpg | 0.39161568 |

| Nama | <i>Output</i> |
|----------|---------------|
| 3468.jpg | 0.65658352 |
| 3469.jpg | 0.42894494 |
| 3471.jpg | 0.56116709 |
| 3507.jpg | 0.69532084 |
| 3536.jpg | 0.74570353 |
| 3572.jpg | 0.76919671 |
| 3590.jpg | 0.47964544 |
| 3617.jpg | 0.36691578 |
| 3680.jpg | 0.5554305 |
| 3688.jpg | 0.53800558 |
| 3691.jpg | 1.01535269 |
| 3724.jpg | 0.50045111 |
| 3736.jpg | 0.88607103 |
| 3777.jpg | 0.87470008 |
| 3801.jpg | 0.45734637 |
| 2888.jpg | 0.21076837 |
| 2993.jpg | 0.08508841 |
| 2994.jpg | 0.31653853 |
| 3007.jpg | 0.67930199 |
| 3081.jpg | 0.25034016 |
| 3082.jpg | 0.31319626 |
| 3083.jpg | 0.21424895 |
| 3096.jpg | 0.4830848 |
| 3106.jpg | 0.49586029 |
| 3126.jpg | 0.07710254 |
| 3127.jpg | 0.24068575 |
| 3139.jpg | 0.49000378 |
| 3140.jpg | 0.42481676 |
| 3190.jpg | 0.35411592 |
| 3231.jpg | 0.39307891 |

| Nama | <i>Output</i> |
|----------|---------------|
| 3254.jpg | 0.613387313 |
| 3260.jpg | -0.249227332 |
| 3282.jpg | 0.168766292 |
| 3397.jpg | 0.547022948 |
| 3411.jpg | 0.519284089 |
| 3414.jpg | 0.101342847 |
| 3418.jpg | -0.130569557 |
| 3434.jpg | 0.297296512 |
| 3467.jpg | 0.549934306 |
| 3473.jpg | 0.257123911 |
| 3475.jpg | -0.292135147 |
| 3484.jpg | 0.253481471 |
| 3547.jpg | 0.492624579 |
| 3553.jpg | 0.211754143 |
| 3554.jpg | 0.113034999 |
| 3565.jpg | -0.102976567 |
| 3569.jpg | 0.492361731 |
| 3605.jpg | 0.408813054 |
| 3612.jpg | 0.331295243 |
| 3625.jpg | 0.001696888 |
| 3630.jpg | 0.116675211 |
| 3644.jpg | 0.573566117 |
| 3653.jpg | 0.453983572 |
| 3699.jpg | 0.551726007 |
| 3720.jpg | 0.234756059 |
| 3751.jpg | 0.31691737 |
| 3757.jpg | 0.572477743 |
| 3810.jpg | 0.489360258 |
| 3828.jpg | 0.025771864 |
| 3834.jpg | 0.204229563 |

Output Data Testing

| Nama | <i>Output</i> |
|----------|---------------|
| 2823.jpg | 0.6081116 |
| 2835.jpg | 0.72175329 |
| 2842.jpg | 0.78355031 |
| 2847.jpg | 0.60641453 |
| 2852.jpg | 1.20442931 |
| 2854.jpg | 0.54834929 |
| 2861.jpg | 0.50911383 |
| 2921.jpg | 0.57758834 |
| 3249.jpg | 0.55086527 |
| 3482.jpg | 0.60392193 |
| 3537.jpg | 1.1670233 |
| 3606.jpg | 0.5547162 |

| Nama | <i>Output</i> |
|----------|---------------|
| 3001.jpg | 0.144716236 |
| 3100.jpg | 0.439173877 |
| 3144.jpg | 0.199783309 |
| 3196.jpg | 0.385561617 |
| 3321.jpg | 0.340286104 |
| 3398.jpg | -0.24088889 |
| 3455.jpg | -0.07560794 |
| 3477.jpg | 0.244704672 |
| 3552.jpg | 0.549317613 |
| 3576.jpg | 0.138064651 |
| 3681.jpg | 0.543245739 |
| 3823.jpg | 0.004892008 |

Lampiran 17. Hasil Pembulatan *Output* Diagnosa Kanker Otak

Hasil Pembulatan Data *Training*

| Nama | Pembulatan | Hasil Diagnosa |
|----------|------------|----------------|
| 2731.jpg | 1 | Kanker |
| 2765.jpg | 1 | Kanker |
| 2801.jpg | 1 | Kanker |
| 2810.jpg | 1 | Kanker |
| 2811.jpg | 1 | Kanker |
| 2815.jpg | 1 | Kanker |
| 2820.jpg | 1 | Kanker |
| 2827.jpg | 1 | Kanker |
| 2829.jpg | 1 | Kanker |
| 2834.jpg | 0 | Normal |
| 2839.jpg | 1 | Kanker |
| 2841.jpg | 1 | Kanker |
| 2844.jpg | 1 | Kanker |
| 2845.jpg | 1 | Kanker |
| 2871.jpg | 1 | Kanker |
| 2931.jpg | 1 | Kanker |
| 2939.jpg | 1 | Kanker |
| 3035.jpg | 1 | Kanker |
| 3119.jpg | 1 | Kanker |
| 3125.jpg | 0 | Normal |
| 3161.jpg | 1 | Kanker |
| 3218.jpg | 1 | Kanker |
| 3234.jpg | 1 | Kanker |
| 3296.jpg | 1 | Kanker |
| 3302.jpg | 1 | Kanker |
| 3303.jpg | 1 | Kanker |
| 3321.jpg | 1 | Kanker |
| 3344.jpg | 1 | Kanker |
| 3354.jpg | 1 | Kanker |
| 3425.jpg | 0 | Normal |

| Nama | Pembulatan | Hasil Diagnosa |
|----------|------------|----------------|
| 3468.jpg | 1 | Kanker |
| 3469.jpg | 0 | Normal |
| 3471.jpg | 1 | Kanker |
| 3507.jpg | 1 | Kanker |
| 3536.jpg | 1 | Kanker |
| 3572.jpg | 1 | Kanker |
| 3590.jpg | 0 | Normal |
| 3617.jpg | 0 | Normal |
| 3680.jpg | 1 | Kanker |
| 3688.jpg | 1 | Kanker |
| 3691.jpg | 1 | Kanker |
| 3724.jpg | 1 | Kanker |
| 3736.jpg | 1 | Kanker |
| 3777.jpg | 1 | Kanker |
| 3801.jpg | 0 | Normal |
| 2888.jpg | 0 | Normal |
| 2993.jpg | 0 | Normal |
| 2994.jpg | 0 | Normal |
| 3007.jpg | 1 | Kanker |
| 3081.jpg | 0 | Normal |
| 3082.jpg | 0 | Normal |
| 3083.jpg | 0 | Normal |
| 3096.jpg | 0 | Normal |
| 3106.jpg | 0 | Normal |
| 3126.jpg | 0 | Normal |
| 3127.jpg | 0 | Normal |
| 3139.jpg | 0 | Normal |
| 3140.jpg | 0 | Normal |
| 3190.jpg | 0 | Normal |
| 3231.jpg | 0 | Normal |

| Nama | Pembulatan | Hasil Diagnosa |
|----------|------------|----------------|
| 3254.jpg | 1 | Kanker |
| 3260.jpg | 0 | Normal |
| 3282.jpg | 0 | Normal |
| 3397.jpg | 1 | Kanker |
| 3411.jpg | 1 | Kanker |
| 3414.jpg | 0 | Normal |
| 3418.jpg | 0 | Normal |
| 3434.jpg | 0 | Normal |
| 3467.jpg | 1 | Kanker |
| 3473.jpg | 0 | Normal |
| 3475.jpg | 0 | Normal |
| 3484.jpg | 0 | Normal |
| 3547.jpg | 0 | Normal |
| 3553.jpg | 0 | Normal |
| 3554.jpg | 0 | Normal |

| Nama | Pembulatan | Hasil Diagnosa |
|----------|------------|----------------|
| 3565.jpg | 0 | Normal |
| 3569.jpg | 0 | Normal |
| 3605.jpg | 0 | Normal |
| 3612.jpg | 0 | Normal |
| 3625.jpg | 0 | Normal |
| 3630.jpg | 0 | Normal |
| 3644.jpg | 1 | Kanker |
| 3653.jpg | 0 | Normal |
| 3699.jpg | 1 | Kanker |
| 3720.jpg | 0 | Normal |
| 3751.jpg | 0 | Normal |
| 3757.jpg | 1 | Kanker |
| 3810.jpg | 0 | Normal |
| 3828.jpg | 0 | Normal |
| 3834.jpg | 0 | Normal |

Hasil Pembulatan Data *Testing*

| Nama | Pembulatan | Hasil Diagnosa |
|----------|------------|----------------|
| 2823.jpg | 1 | Kanker |
| 2835.jpg | 1 | Kanker |
| 2842.jpg | 1 | Kanker |
| 2847.jpg | 1 | Kanker |
| 2852.jpg | 1 | Kanker |
| 2854.jpg | 1 | Kanker |
| 2861.jpg | 1 | Kanker |
| 2921.jpg | 1 | Kanker |
| 3249.jpg | 1 | Kanker |
| 3482.jpg | 1 | Kanker |
| 3537.jpg | 1 | Kanker |
| 3606.jpg | 1 | Kanker |

| Nama | Pembulatan | Hasil Diagnosa |
|----------|------------|----------------|
| 3001.jpg | 0 | Normal |
| 3100.jpg | 0 | Normal |
| 3144.jpg | 0 | Normal |
| 3196.jpg | 0 | Normal |
| 3321.jpg | 0 | Normal |
| 3398.jpg | 0 | Normal |
| 3455.jpg | 0 | Normal |
| 3477.jpg | 0 | Normal |
| 3552.jpg | 1 | Kanker |
| 3576.jpg | 0 | Normal |
| 3681.jpg | 1 | Kanker |
| 3823.jpg | 0 | Normal |